A Global Perspective of the Wine Supply Chain – The case of Argentinean Wineries and the U.S. Market

by

Cristian Adamo

Lic. en Arquitectura, Universidad de Belgrano, 1997

Submitted to the Alfred P. Sloan School of Management
in Partial Fulfillment to the Requirements for the Degree of

Master of Science in the Management of Technology
June 2004

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Signature of the Author

Sloan School of Management
May 7, 2004

Certified by

Henry Birdseye Weil
Senior Lecturer, Sloan School of Management
Thesis Supervisor

Certified by

James T. Lapsley
Chair, Dept of Science, Agriculture and Natural Resources
UC Davis Extension
Thesis Reader

Accepted by

David Weber
Director, MOT Program
Sloan School of Management
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ABSTRACT

Consumers are constantly demanding better products, at lower prices, along with better overall services and customer support. Organizations, on the other hand, are struggling with shorter product life cycles, increased product variety and lower profit margins due to fierce global competition and faster commoditization of products and services. In a new, global world, targeting local markets does not seem to be enough for long-term company survival. Good supply chain management and design is becoming a key factor for resource optimization, overall user experience enhancement and to achieve a competitive strategic advantage in order to gain sustainable growth ratios.

This thesis analyses how current trends in Supply Chain Management are affecting the global wine supply chain, and builds on the specific case of Argentinean wineries that sell their products in the U.S. market.

I start by analyzing each tier of the supply chain using Porter’s Five Forces model in order to understand the characteristics of each tier, how these forces impact the supply chain as a whole, and how companies interact between tiers. While doing so, I also analyze how current trends in Supply Chain Management are affecting the current state of the supply chain.

Finally, I describe possible changes in the supply chain configuration due to the adoption of these new trends by organizations along the chain, and describe some of the major aspects that Argentinean wineries should take into account in order to gain a better competitive advantage along the chain.

Thesis Supervisor: Henry Birdseye Weil
Title: Senior Lecturer, Sloan School of Management
Thesis Reader: James T. Lapsley
Title: Chair, Dept of Science, Agriculture and Natural Resources
Acknowledgements

To some extent, this thesis is the result of the efforts made by many people working in different companies along the wine supply chain. They have contributed not only with their time, but also by sharing their knowledge and experience in different fields related to this research work. I would like express sincere gratitude to all of them.

I would also like to specially thank my thesis advisor, Prof. Henry Weil, and my thesis reader, James Lapsley, for their constant support and guidance.

... to my wife, Elena.
# Acknowledgements

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Chapter 1:  
Introduction

Consumers are constantly demanding better products, at lower prices, along with better overall services and customer support. Organizations, on the other hand, are struggling with shorter product life cycles, increased product variety (even mass customization) and lower profit margins due to fierce global competition and faster commoditization of products and services. In a new, global world, targeting local markets does not seem to be enough for long-term company survival.

Good supply chain management and design is becoming a key factor for resource optimization, overall user experience enhancement and to achieve a competitive strategic advantage in order to gain sustainable growth ratios. Information technologies like the Internet, ERP systems, and Bar Code systems (and now RF-ID [1] [2] [3]) are probably the most important enabler for current changes and trends in supply chain management, and are constantly pushing the limits of supply chain design and operation, giving birth to entirely new business models like those of Dell, Nike or Cisco.

As suggested by [4] and [5], organizations are now encouraged to outsource everything but their core competences, and can no longer afford to concentrate on their own strategy, as if they were an isolated entity. They now have to take into account the supply and value chains they are immersed into, namely, the supra-organization. [5] Also suggests that in some industries competition is shifting from competition between organizations to competition between supply chains. In taking a “supply chain-wide” approach to their business strategies, some organizations are focusing on maximizing the profits of the supply chain as a whole as a way to maximize their own profits.

With new remote-team collaboration and real-time information sharing technologies already in place, one of the major problems that companies are currently facing in order to develop supply chain-wide strategies is to develop long-term, trust-based inter-organizational relationships[6]. Most supply-chain wide strategies aimed at lowering operational costs rely heavily on information sharing, and information sharing most often than not means disclosing information perceived as “sensitive” by companies, and therefore before pursuing any of these strategies companies need to be able to build close, trust-based relationships. Furthermore, implementing supply chain-wide projects often requires reviewing other strategic issues such as pricing policies, marketing campaigns, etc.
An example of this is the implementation of Vendor Managed Inventory (VMI) policies in which, for example, the manufacturer manages the wholesaler’s inventory for that particular manufacturer products. From the wholesaler’s perspective, daily demand and stock level information needs to be sent to the manufacturer, and he will have trust that no losses will be realized as a consequence of higher stock levels or supply shortages. From a manufacturer’s perspective, he will have to trust that the wholesaler will not use the extra “shelf space” obtained as a consequence of lower inventory levels to stock competitor’s products. Furthermore, in order for these projects to yield lower operational costs, pricing policies such as EDLP\(^1\) usually need to be established, and marketing campaigns need to be implemented in collaboration with wholesalers and retailers to make sure that no inventory stock-out will occur.

**Why Wine?**

With all these changes taking place in the field of Supply Chain Management, an impressive amount of qualitative and quantitative research is currently being done in top universities around the world. Nevertheless, most (if not all) of this research is based on (and aimed towards) manufacturing industries such as CPG\(^2\), Automotive and PC industries, and it is difficult to find information or examples based on agriculture-based supply chains.

Coming from Argentina, whose most important exports are based on agricultural commodities such as the Soya, it intrigued me to find out how these supply chain-wide strategies could be adapted to agricultural-based industries in which many factors such as production times and cycles could not be directly decided upon. Furthermore, managing capacity in these industries is complex as it takes at least one year to adjust production to new market trends.

Having said this, I believed the wine industry to be an interesting industry on which to base my research work. No only because wine is an agricultural based product, but also because wine based products range from commodity (i.e. kitchen or cooking wine) products that are shipped in bulk, to extremely costly, exclusive products.

From a much more personal (but not less important) point of view, I truly believe that those of us who were blessed with the chance of having access to higher education

\(^1\) Every Day Low Price, which results in constant pricing, avoiding demand fluctuations due to price incentives with wholesalers.

\(^2\) Consumer Packaged Goods.
standards and exposure to multiple cultures also have stronger social responsibilities in
terms of making of our world a better place to live in. I wanted to write my thesis on a topic
which would enable to me to somehow contribute to my country. The fact that wine is
already a global-traded product, added to the fact that Argentina is the fifth largest world-
wide exporter of wine, and that after the crisis of December 2001 many industries are trying
to export goods to other countries as a way to achieve better financial performance and
stability, it made a lot of sense for me to base my research on this industry.

Goals

This research thesis has two main goals.

The first goal, and following the ideas introduced at the beginning of this chapter, is to
map the global wine supply chain from the Argentinean grape growers all the way to the
U.S. end customer. This includes finding out which companies lie along the chain, how they
add value, and how they interact with each other. While doing so, I will also analyze how
current supply chain trends are affecting the shape of this particular supply chain, and
understand what changes may take place in the near future.

The second goal of this thesis is for it to become a basic reference material for
wineries in Argentina interested to enter the U.S. market. Even though this thesis builds on
the case of Argentinean wineries, I also expect it be useful for any winery in or out the U.S.
that is interested in taking a more global view of the supply chain.

Research Methodology

The Framework

A considerable amount of research time went into deciding which framework to use in
order to analyze the information gathered from the interviews and the bibliography. The
problem I encountered was that most frameworks for supply chain management analysis,
like those presented in ([30] [7] [3] [9] [10]) are either too general or too specific to a given
supply chain management topic, like inventory or postponement strategies. In any case, I
strongly believe that using such frameworks wouldn't have enabled me to analyze certain
aspects of the gathered information, and that I felt were key to understand the current
state of the wine supply chain.

As the nature of inter-organizational relationships was fundamental to the analysis of
the supply chain, I finally decided to use the “five forces” model presented by Michael Porter
in [32]. In order to get consistency throughout the analysis, I decided to use the same framework to analyze all tiers of the supply chain. This has enabled me not only to understand how the “forces” that develop in each tier of the supply chain affect companies in that specific tier, by how they affect the supply chain as whole.

I have decided to separate the wine supply chain in two major segments: the “Argentinean” tier (which produces the wine), and the “U.S.” tier, which distributes it. Furthermore, and for reasons given in Chapter 2, the Argentinean tier is separated in two sub-segments: the table wine supply chain, and the premium wine supply chain, while the U.S. tier is separated in the wholesaler and retail tiers.

Even though this might seem inconsistent, it is not. The fact is that the premium and table wine supply chains are different enough as to require separate analysis, while both industries use the same distribution channels in the U.S.

Having said this, and given the complexity of the supply chain, I have simplified some concepts and situations for practical reasons, being confident that the information provided in this thesis holds true in at least eighty percent of the cases.

**The Interviews**

Interviews with companies were conducted between November 2003 and March 2004. They were carried out by telephone or through personal visits when possible. The major goal for these interviews was to gather qualitative information regarding how companies interact with each other. It is because of this that even though they were based on questionnaires specifically designed for each interview, most of them were open ended, building covering topics that I believed were relevant as the interview unfolded.

The following is the list of people that kindly contributed to the thesis (in alphabetical order):

- **Arpi, Jorge** (Bodgas Peñaflor S.A, Argentina) [11]
- **Baldoni, Gustavo** (Moet Chandon, Argentina) [33]
- **Fernández, Sandra** (UBA – Facultad de Agronomía, Argentina) [12] [13]
- **Hartzman, Fred** (Wine-Logistics, Belgium) [14]
- **Murphy, John** (J. F. Hillebrand, U.S.) [15]
- **Nejaime, Georges** (Nejaime Wine Cellars, U.S.) [16]
- **Ross-Walker, Damon** (The Grateful Palate, U.S.) [17]
- Tehrany, Pierre (New Vine Logistics, California, U.S.) [18] [19]

- Argus International, U.S. [37]

....to all of you, my most sincere feelings of gratitude.
Chapter 2:
Factors Influencing the Wine Supply Chain

Introduction

Even though scientific advances in the wine making processes had enabled wineries to gain more control over production processes [29] (i.e. wine fermentation control), it can be inferred from the referenced bibliography that the wine supply chain seems to have two major tiers: the supply of fresh grapes to produce the must, and the supply of the finished product to the consumer.

As suggested by [27], issues related to the wine supply chain go as back as to the 17th century. Up until then, wine had almost no competitor, specially in central and south Europe, and in places were land was cheap. I was probably one of the only beverages that could be stored (due to its alcoholic nature). Pasteurization was yet to be discovered, and drinking water was unsafe, at least in big cities. People had incorporated wine in their everyday lives, and it was the natural beverage to share during meals.

“In the 17th century all this changed, starting with chocolate from Central America, then coffee from Arabia and finally tea from China. At the same time Dutch developed the art and commerce of distilling, turning huge tracts of western France into suppliers of cheap white wines for their stills; hops turned ale into more stable beer and great cities began to pipe the clean water they had lacked since Roman times. The wine industry was threatened with catastrophe unless it developed new ideas.” 3

Johnson and Robinson [27] also note that it is probably not a coincidence that it was during these decades that, what we today consider “wine classics”, were first developed.

Up until the early 17th century wine was produced mostly for local consumption, which restricted its market to regions in which vines could be grown. Wine was stored and transported as bulk in wood barrels. [28] Suggests that these barrels were probably invented by Celts around 500bc, replacing the amphorae which up until then was the preferred container for liquid transportation. Wood Barrels, which could not withstand long voyages on coaches, as they would spill its contents, posed a clear limit to the distance

---

along which wine could be delivered. At best, wine would enter in contact with air which would render the product undrinkable after a few days.

The technological advances that took place in the glass industry during the first half of the 17th century, which made glass bottle production cheaper and easier, played a major role in shaping the wine supply chain and its industry, as wine could now not only travel much larger distances, but it could also be aged in glass bottles. It was around that time that an unknown thinker brought together the bottle, the cork and the corkscrew. As suggested by [4], this enabled the wineries to reach the middle classes living in cities:

“The influence of this nascent consumer revolution can be seen by the early nineteenth century, when two of the most expensive wines in the world were tokay and Constantia – not from France or Italy, but from Hungary and South Africa. Sixty years later, the spread of railways led to the next development. When wines from Italy or the south of France could be delivered in Berlin or London or Paris within 24 hours, producers no longer needed to seek a market only in the nearest town.”

Besides the characteristics of both, the U.S. wine market and the Argentinean wine industry, there are a number of other issues that influence the Argentinean-U.S. wine supply chain. Before we start dealing with supply chain management issues regarding the wine supply chain, it is important to analyze and understand some of these major underlying factors that contribute to its shape and evolution. Not only because it will enable us to have a better understanding of whole chain and how it evolved, but mostly because as obvious as these issues might seem once listed, I have found that they are not that obvious for people with little experience in the wine industry, and even to some small wineries.

These major factors are as follows:

- Product breath.
- Legal issues (especially in the U.S.).
- Winery location (the geographic dependence).

I will start by explaining each of these factors, what they mean, what they characteristics are, and some of the issues on which their build. Then, in the next chapter, we will discuss how these factors influence the supply chain.

---

Product Breath

If one conclusion needs to be drawn from this thesis, it is that it is almost impossible to talk about “the” wine supply chain. Producing and selling a bottle of wine that will sell for a retail price of $2,00 a bottle is different than doing the same for a bottle of wine that will sell at $50,00. As an example of how these issues impacts different wine production strategies, Table 1 shows the estimated production costs per bottle for selected Californian wineries in 1996 and 1997.

As we can see, these are two different products, usually (but not always) produced by two different types of companies. Moulton & Lapsley [20] call them “Market Driven” and “Product Driven” wineries. Furthermore, the fact that it is not strange for a U.S. wholesaler to carry a huge portfolio of different wine labels has an impact upstream on the configuration of the supply chain that cannot be overseen.

Even though most statistics and Books use terms like “Table Wine” or “Vine Ordinaire” to refer to the cheaper wine the sells by volume, and “Premium” or “Private Label” to refer to premium wines (assuming two general categories), from my interviews I have empirically detected four wine segments that pose different challenges to strategies pursued by the wineries: wines that have a retail price of less than $6,00 a bottle, wines in the range from $6,00 to $13,00, wines in the range of $13,00 to $30,00, and wines that sell above $30,00.

From a supply chain perspective, we also have to make a difference between producing for the packaged (i.e. bottled) or bulk markets, as they also involve different products, different markets, and different logistics.

Product breath seems to have an important impact on the grape procurement process, overall capital requirements, target market, production processes and commercial processes.
### Table 1

<table>
<thead>
<tr>
<th>Item</th>
<th>Winery 1</th>
<th>Winery 2</th>
<th>Winery 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual case output</td>
<td>10,000</td>
<td>100,000</td>
<td>&gt;250,000</td>
</tr>
<tr>
<td>Target retail shelf price</td>
<td>$30.000</td>
<td>$12.000</td>
<td>$7.000</td>
</tr>
<tr>
<td><strong>Production items</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sampling analysis</td>
<td>$0.011</td>
<td>$0.003</td>
<td>$0.005</td>
</tr>
<tr>
<td>Grapes</td>
<td>$3.472</td>
<td>$2.083</td>
<td>$1.111</td>
</tr>
<tr>
<td>Hauling</td>
<td>$0.069</td>
<td>$0.000</td>
<td>$0.000</td>
</tr>
<tr>
<td>Crushing</td>
<td>$0.486</td>
<td>$0.347</td>
<td>$0.208</td>
</tr>
<tr>
<td>Fermentation additives</td>
<td>$0.050</td>
<td>$0.001</td>
<td>$0.001</td>
</tr>
<tr>
<td>Yeast</td>
<td>$0.010</td>
<td>$0.004</td>
<td>$0.001</td>
</tr>
<tr>
<td>Barrels</td>
<td>$1.042</td>
<td>$0.521</td>
<td>$0.006</td>
</tr>
<tr>
<td>Aging loss</td>
<td>$0.208</td>
<td>$0.104</td>
<td>$0.044</td>
</tr>
<tr>
<td>Aging analysis</td>
<td>$0.029</td>
<td>$0.007</td>
<td>$0.015</td>
</tr>
<tr>
<td>Consultants</td>
<td>$0.292</td>
<td>$0.017</td>
<td>$0.003</td>
</tr>
<tr>
<td>Cellar process</td>
<td>$0.847</td>
<td>$0.508</td>
<td>$0.450</td>
</tr>
<tr>
<td>Glass (bottles)</td>
<td>$0.833</td>
<td>$0.375</td>
<td>$0.313</td>
</tr>
<tr>
<td>Corks</td>
<td>$0.240</td>
<td>$0.140</td>
<td>$0.085</td>
</tr>
<tr>
<td>Capsule</td>
<td>$0.100</td>
<td>$0.045</td>
<td>$0.042</td>
</tr>
<tr>
<td>Label</td>
<td>$0.075</td>
<td>$0.040</td>
<td>$0.035</td>
</tr>
<tr>
<td>Bax</td>
<td>$0.000</td>
<td>$0.002</td>
<td>$0.001</td>
</tr>
<tr>
<td>Bottling</td>
<td>$0.175</td>
<td>$0.138</td>
<td>$0.121</td>
</tr>
<tr>
<td>Shipment to warehouse</td>
<td>$0.010</td>
<td>$0.010</td>
<td>$0.010</td>
</tr>
<tr>
<td>Excise tax</td>
<td>$0.074</td>
<td>$0.274</td>
<td>$0.274</td>
</tr>
<tr>
<td>Lab work</td>
<td>$0.009</td>
<td>$0.029</td>
<td>$0.025</td>
</tr>
<tr>
<td>Production costs per bottle</td>
<td>$8.032</td>
<td>$4.648</td>
<td>$2.750</td>
</tr>
<tr>
<td>Overhead</td>
<td>$7.260</td>
<td>$1.730</td>
<td>$0.860</td>
</tr>
<tr>
<td>Marging before tax</td>
<td>$6.708</td>
<td>$1.122</td>
<td>$0.140</td>
</tr>
<tr>
<td>Average price at the winery</td>
<td>$22.000</td>
<td>$7.500</td>
<td>$3.750</td>
</tr>
</tbody>
</table>


### Grape Procurement

Wine still remains mainly an agricultural product. Even though many new technologies have been introduced in the twentieth century (and some before) that enable wineries to better control the wine production process and develop better and more stable wines from lower quality supplies [21], the quality of grapes still plays a major role in the quality of the final product. As a general reference, Table 2 illustrates the factors that influence the quality of the final products (although these amounts might change depending on the type of wine being produced).
Table 2

<table>
<thead>
<tr>
<th>Factor</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grapes</td>
<td>75%</td>
</tr>
<tr>
<td>Barrels</td>
<td>10%</td>
</tr>
<tr>
<td>Wine making method</td>
<td>6%</td>
</tr>
<tr>
<td>Wine maker</td>
<td>4%</td>
</tr>
<tr>
<td>Winery equipment</td>
<td>3%</td>
</tr>
<tr>
<td>Bottling plan</td>
<td>2%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>


It is not difficult to understand why grape growers are the most important and strategic suppliers for wineries. Grape growers, that by nature are forced to make long term investments in their vineyards and whose production depends highly on natural factors such as climate, seem to be very sensitive about their relation with wineries. The relationship between wineries and grape growers has never been an easy one. History is full with cases of forward integration from the side of grape growers creating “cooperative wineries” and backward consolidation from the side of wineries buying land from grape growers.

While large wineries rely mostly on third-party providers to manage capacity [22], it is safe to say that the more premium their product, the more they rely on self-owned vineyards.

Obviously, for premium products, wineries need to be able to better control the grape growing process, as it plays a more strategic role in the overall wine production process. This happens not only because wineries are dealing with a premium product, but also because less technology and chemicals are used throughout the production process and therefore the quality of grapes has a deeper influence on the final quality of the produced wine.

A typical example of how complicated the relationship between wineries and grape growers is can be described as follows: the grape growers grows and harvests the grapes, but it is the winery who gets to decide which grapes are suited for wine production. The more premium the wine, the more carefully it will select the grapes. A question then arises: who will pay for the unused grapes? Furthermore, how can the grape grower possibly predict how much of its production he will be able to sell to the winery? Was a given lot of grapes mistreated during harvesting, transportation, or inside the winery? As one can then imagine, the fact that the final decision relies on such subjective matters can easily
generate a situation in which having an outside supplier is more complicated than producing the grapes in self owned vineyards.

Having said this, only small "boutique" wineries that sell wines in the upper price level described above seem to rely solely on their own production of grapes. Wineries that produce premium wines, like Robert Mondavi, have been successful in developing long term relations with grape growers [], supplying capital and training when necessary, and agreeing on a certain level of quality.

On the other side, production of large volume of table wine is usually related to a more typical transaction cost relationship. Profits are the major issue for these organizations, and the quality of grapes does not play such a strategic role, although capacity management issues remain crucial. These companies usually purchase grapes from a variety of providers, establishing long-term contracts as well as performing one-time transactions. They buy grapes, must (already crushed grapes), or generic wine from wine brokers that brokers might even import from other countries, to blend them with their own production or to label it under a different brand. As we will see, all these issues will obviously have an important impact on logistics and intra-organizational relationships.

**Capital Requirements**

Wine production is, in essence, a financially intensive business. The two main reasons for this are the natural ageing process of wine, and vineyard ownership.

Depending of the type and quality of wine, wine needs ageing, and this means inventory and working capital. A look at the balance sheets of public held wineries in the U.S. [23], Australia [24] and Chile [25] suggests inventories / days sales ratios of an average of 230 days. While a Bordeaux can take up to 14 years to reach its peak, other wines can reach the markets as soon as 6 months after the crush. Even though wineries do not need to hold the wine until it reaches its peak, this process certainly affects working inventories. Many new technologies have enabled wineries to raise the quality of their wines while avoiding long ageing periods, but for premium wines the process remains essentially the same and this step is hard to avoid. The fact that grapes are harvested during a short and specific period of time during the year also adds to this problem, as wineries need to produce during this period of time the wine they will be selling throughout the year.

In addition, producers of premium wines tend to own their vineyards. This means that a substantial amount of capital needs to be used to buy land (a very specific type of land) for planting vines. Vines take up to 4 years and intensive care and human labor to produce substantial yields of grape juice for wine production, and they yield economically accepted
volumes of juice for approximately 20-35 years. If we consider the fact that they are prone to diseases, and that it takes years to replant the vineyards to accommodate a change in market trends, we can see that the financial risks of these operations are not to be let unseen.

Furthermore, the amount of juice that can be used from grapes to produce wine differs between with the quality and type of wine, with a general rule that the more premium the wine, the larger the volume of grapes (and hence, capital) that needs to be used to produce the same quantity of wine.

With such financial pressure on them, wineries seem to have found different methods to overcome these problems. Two examples of these methods are the fact that, in Argentina for example, for grape growers it is not uncommon to finance the production of a certain crop by selling "futures" of their production at fixed prices. Although less used, wineries worldwide also sell futures of their production of certain vintages. These futures are generally not bought by speculators trying to make some profit, but by wine connoisseurs who know that a particular vintage was good, and buy a certain amount of bottles cheaper hoping that in a couple of years their prediction will show true.

**Commercial Processes**

Perhaps one of the most important aspects of product breath is the effect it has on the commercial and marketing processes of the wineries, or how wine is sold:

"[...] *Price is closely related to image. Many people evaluate wines based on price: the higher the price, the better the wine must be. Conversely, lower prices are associated with lower quality. A prestigious brand is incompatible with low prices and mass distribution. It must deliver value over time to sustain its price and limited production.*"\(^5\)

Small wineries that typically produce between 5,000 or 10,000 cases of premium wine a year need a way to get their label to be known to a select group of premium buyers around the world. On the other hand, wineries that produce 1,000,000 cases of table wine need a way to push their products through the chain (or get them to be pulled, in an ideal situation) as fast and profitably as possible.

The fact that today a wholesaler in the U.S. can work with up to 230 wineries simultaneously [20], each with its own family of labels, must be considered when defining a commercial strategy:

"[...] So when a smaller, estate-based brand like Franciscan Estates seeks representation in expanding a smaller, estate-based brand like Estancia, the response may be no more than a stifled yawn. That is why a winery needs a sound marketing strategy and the elements of a very strong brand."6

Wine wholesalers are attracted to products that leave them with high profits and that have higher turn-over ratios. Clearly, these two factors work differently in table and premium wines.

Some wineries pursue strategies to generate brand awareness in order to be able to pull the product through the distribution chain ("forcing" retailers and wholesalers to carry the product through customer demand), others try to work closely with wholesalers in order to find the best way to push the product through the chain.

In any case and for any type of product, wineries are competing in a global market against a huge amount of different brand labels, each of them with different characteristics. As economies of scale and target markets enable wineries to pursue different strategies, the wineries need to work closely with other players in the chain in order to design the best fit for the market they are trying to reach.

Legal Issues

The wine industry is, without a doubt, a heavy regulated industry. Regulations exist along whole supply chain, from the grape growing process all the way to how and where wine is sold. Regulations for the industry, especially in the U.S. are so important and diverse that it becomes fundamental to have a global understanding of how they work in order to be able to design a working marketing and distribution system.

Regulations are mainly a result of three different facts:

- The alcoholic nature of wine tends to force governments two regulate where and to whom wine can be sold, and under which circumstances it can be consumed.
- Import/Export quotas and taxes imposed by governments.

The wine industry itself (mostly wineries and grape growing associations) has encouraged governments to regulate some aspects of the wine production processes to ensure the quality of their products to their customers. These systems are usually known as "Appellation of Origin".

A wide array of regulations exists in each stage of the supply chain. These might vary from country to country, and some countries (like U.S., the EU and Australia) have more advanced systems than others. Special treaties exist between regions (i.e. between Australia and the EU [26]), most of which regulate the usage of certain names for wine marketing purposes, like "Chablis" or "Bordeaux". Furthermore, each country forces and controls the applications of these systems to different extents.

Import, export and other taxes need also be taken into account, as they impact the final price of the product. A product with a FOB price of $56.00 per case pays taxes of $5.36 in Florida, $3.6 in Georgia and $1.89 in North Carolina [20]. These taxes can impact retail prices in such a way that it might not be attractive to the winery to sell its products in a given geographic location.

Clearly, a thorough description of these systems and their effects on the wine supply chain would be out of the scope of this thesis. Nevertheless, it is important to keep the following factors in mind.

**U.S. distribution and selling regulations**

While wine regulations in most countries are managed by their respective Government’s Agriculture Bureaus, U.S. regulations for the wine industry are managed by the ATF (Bureau of Alcohol, Tobacco, and Explosives) which suggests that, to some extent, wine is still being seen by the government as some kind of drug or dangerous substance.

Since repeal in 1933, the ATF manages what is known as "the three tier system", mostly to force rivalry between organizations, avoid the proliferation of mob-like organizations (which controlled most of the distribution during the prohibition years) and avoid companies to gain power through economies of scale.

The three tier system means that the U.S. government identifies three different types of organizations along the wine distribution chain:
- Wineries or Wine Importers.
- Wholesalers.
- Retailers.
The general idea of this system is that wineries, or wine importers, are forced to sell their products to wholesalers who, in turn, must sell their products to retailers who then sell the final products to the end customer. Organizations cannot by-pass any of the tiers, and the only way for wineries to sell directly to the end-customer is by selling at the cellar’s door.

But then the issue of transporting wine (inter-state trade) comes into play, and shipping (or simply transporting) wine between states can easily become a nightmare. While shipping wine to Alabama is considered a felony, it is legal to send up to two cases a month to Oregon, 5 cases a year to New Hampshire, or a “reasonable quantity” to Alaska. Furthermore, specific treaties exist between states, and transport regulations to a given state might vary depending on the state in which the transaction was originated.

As we see, some laws and licenses are federal; others are defined by each state, and other by counties (like Wellesley, MA, where the retail distribution of alcohol is prohibited).

Winery, wholesalers or retailers that have a license to establish their business in one state, are usually forbidden to establish another organization in another state. In some states, like Vermont or New Hampshire, the retail tier is controlled by a government monopoly (i.e. the only stores authorized to sell alcoholic beverages are owned by the government). Other states like Massachusetts require investing in extremely expensive licenses.

Usually, companies with business in one of the tiers cannot have investments in any of the other tiers, although this also depends on state regulations. In some states the wholesaler can also be the importer, and in others the integration can go even further.

To make things even more complex, legal issues are not always black and white, and some companies have found ways to either work around certain regulations or simply “bend” them (as was the case of some e-commerce Internet sites). As we can see, selling and distributing wine in the U.S. is as complex as selling and distributing wine to 50 different countries.

**The Argentinean and the U.S. “Appellation of Origin” systems**

**Winery Location**

The winery’s location must also be taken into account when thinking about the wine supply chain. Unlike manufactured products, which usually do not depend on natural factors for their production, wine is made out of grapes, and grapes can only be grown in certain
locations. Some of the most important natural factors that determine a vineyard’s location are soil, climate (mostly temperature), irrigation and geography.

An important number quantitative and qualitative research has been already done in order to understand how different natural factors influence the wine characteristics and production processes. Prof. Maynard Amerine, for example, devoted many years of his career at University of California Davis starting in 1935 to understand how different climates affect the quality of wine, and which grape varieties were best suited for different areas of California.

Even though for the purposes of this thesis it is not necessary to describe in every striking detail how each of these components influence the final characteristics of the grape’s juice (general references to these topics can be found in [27],[28] and [29]), I do believe the following general and, to some extent arguable characteristics easily illustrate how some of these factors influence the supply chain:

- As a rule of thumb, vines usually grow between 30 and 50 degrees of latitude in the northern hemisphere and between 30 and 40 degrees in the southern hemisphere. Altitude further shifts the temperature by reducing by two degrees each 100 meters.

- "Vines are dormant below about 10°C, and ripening occurs only above about 17°C. Vine function diminished above 24°C, and the vine may shut down entirely at temperatures higher than about 32°C."

- Vines typically need between 500mm and 750mm of water per year, depending on the average temperatures. There does not seem to be a maximum amount of water they can take, as they tend to recover fast from floods.

- Frost affects the quantity of grapes that ripe (especially if it occurs near the ripping period), but usually does not affect their quality.

- "The ideal soil, therefore, has good drainage, with access to retained water at some depth if irrigation is not an option. It should have a balanced texture – neither too much clay, which will waterlog, nor too much sand, which drains well but does not retain nutrients."

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Finally, we find the concept of “terroir”, from the French word that means “soil”: its dust, geological composition, and its interaction with the natural factors from which it evolved. This is probably the hardest factor to explain, and which has recently sparked many discussions among wine enthusiast.

Terroirs are small and specific regions with their own micro-climates, and they can vary substantially along very short distances.

Some wine connoisseurs argue that the characteristics of each terroir inevitably influence the vine, and therefore can be distinguished in each wine. They argue that planting a vine in one place might not yield the same wine than planting the same vine 20 or 30 meters away.

To which extent this is true or not is a very subjective matter, and we will leave this discussion to wine experts. Enough to say is that, without any doubt, this factor has been exploited by many wineries to market the characteristics of their wines, and is one of the major contributors to the wide variety of labels that exist in today’s market, as we have seen before.
Chapter 3:  
The Argentinean Production Tier

Introduction

This chapter focuses on the Argentinean tier of the wine supply chain. Although many different types of companies comprise this supply chain (i.e., bottle and cork suppliers, freight forwarders, transport companies, etc.), we will concentrate mostly on grape growers and wineries (as depicted in Figure 1), as these are the two central players in the chain. All other companies work mostly as suppliers for these players.

As we analyze the relationship between grape growers and wineries and the environments in which they operate, and following the ideas presented in the previous chapter, it is necessary to make a distinction between the production of table and premium wine. It is because of this that this chapter is divided in two main sections: the table wine supply chain and the premium wine supply chain. Again, even though further sub-segmentation might be desirable, I have chosen this grouping in order to keep the complexity of the analysis to a minimum level. Furthermore, this level of analyses has proven to be enough to raise most of the issues currently faced by the industry.
Order Flow and Product Flow

U.S. importers place orders to wineries following mostly pull strategies. As we will see in the next chapter, they place orders based on market trends and demand forecasts that they build from the information they receive from wholesalers. Other information also comes into play like transport lead times and the production lead times of wineries, but from the interviews held for this thesis it can be concluded that most orders are placed based on empirical information drawn from experience, and not from any stock or market trend system.

Once the winery receives the order, it takes the wine from the aging tanks (or barrels) and bottles it, labels it, and sends it to the freight forwarder. Although times vary greatly among wineries, this whole process can take up to two weeks for a 10,000 cases order.

Most wineries in Argentina sell either ex-cellars or F.O.B., which means that they own the wine only until it leaves their cellars or arrives to the port of origin (mostly Buenos
Aires, but some wineries also send through Santiago de Chile). We will see how this issue also contributes to the shaping of the supply chain.

Product an order flow between wineries and grape growers differ greatly from product and order flow between wineries and their customers, and the main reason for this is the fact that this is the tier of the supply chain were the agricultural factors are most visible. While order flow in this case usually refers to a long term relation that intensifies as the harvesting months begin, product flow occurs only once a year. Furthermore, the nature of both order and product flow vary greatly depending on the quality of wine the winery is producing.

**Information Sharing and Collaboration**

Industry atomization is a constant among all tiers of the wine supply chain. One of the major consequences of this atomization is that information sharing and overall collaboration becomes difficult. Unlike other industries, no player is powerful enough as to impose a standard for information sharing, and companies lack the scale to invest heavily on information technologies that might enable them interact with each other. Having said this, most information sharing occurs in an informal way, through the personal bonds that organizations build with each other, and this is especially true in the case of wineries and grape growers. At the same time, the fact that wineries sell F.O.B. or ex-cellar also needs to be taken into account, as this works as a barrier for them to gather information regarding what happens with their products once they move down the supply chain.

Atomization also creates problems for the industry to define and follow strategies as a whole, although the importance of “country branding” and “region branding” does plays a major role as an incentive for wineries to define common strategies.

**Push vs. Pull Strategies**

From a very particular perspective, companies can pursue two strategies when designing their supply chains: push or pull strategies [30]. Push strategies refer to companies “pushing” their products downstream to the market. Companies base their production on demand forecasts and different tiers on the chain need to hold safety stock in order to compensate for lead times and demand variability. On the other hand, pull strategies (customers “pull” products from the chain) are mostly associated with lean manufacturing, were companies produce goods almost in an “on demand” basis, as orders
enter the chain. In this case, safety stock, if any, is only needed to compensate for lead times.

While pull strategies relate to more optimized supply chains and yield to better financial results because of the facts that less inventory is held and there is less probability to miss sales due to supply shortages, most companies are still following push strategies. Push strategies are complex to implement, require close interaction among tiers on the supply chain, and are sometimes impossible to implement, as is the case of the wine industry.

Wine still remains mostly an agricultural product. Grapes, the primary supply for wine production, are harvested once a year. Even though different wines will go through different aging periods before it can be sold by the winery, grape fermentation takes place only during a couple of weeks right after harvesting. Obviously, grapes cannot be harvested "on demand", and fermentation needs to take place as soon as the grapes are harvested. These two factors make it impossible for wineries to pursue pull strategies when designing their supply chains.

Interestingly enough, wineries seem to be in the middle of push-pull strategies followed by different tiers of the supply chain. On one side, grape growers follow a push strategy: as soon as they harvested their grapes they have a very specific time window in which they can sell their year’s production. On the other side, distributors and retailers tend to follow a pull strategy, placing orders following market demand, both in terms of quantity and quality. Wineries are forced to act as a “buffer” between these two strategies, and as we will see throughout this chapter, they seem to have developed a series of procedures to compensate for this issue.

Postponement

As we have seen, wineries act as a buffer between push-pull strategies followed by grape growers and distributors. Production takes place mostly during a couple of weeks each year, and therefore they are forced to keep large amounts of inventory in order to be able to meet customer demand. In order to lower the cost of inventory as much as possible, they rely on postponement strategies. Postponement can be defined as "the act of delaying changes in the product form or identity until the last possible moment" [10].

According to [30], many different postponement strategies exist today, which range from full speculation to full postponement. Wineries have developed techniques to delay the production of wine as much as it is physically possible, moving finalization processes such

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as bottling, labeling and packaging as close to the customer as possible. This has two major effects for them: the first one is that it lowers the financial costs of operations and inventory, and the second one is that adds significant lead times for when an order enters their system.
The Table Wine Industry

Figure 2

**Barriers To Entry**
- Economies of scale can be achieved through the standardization of processes
- No product or brand differentiation
- High capital requirements
- Low switching costs from buyers
- No international channel lock-in, but local channel lock-in.
- No proprietary technology
- Low experience and learning effects
- No material / location lock-in

**Government Action**
- No industry protection
- Moderate industry regulation
- Easy foreign exchange & ownership
- No assistance provided to competitors

**New Entrants**
- High entrant threat

**Moderate bargaining power of suppliers**

**Power of suppliers (grapes)**
- No key supplier
- Low availability of substitutes of suppliers' products
- Moderate differentiation and switching costs of suppliers' products
- High threat of suppliers forward integration
- High industry threat of backwards integration
- High suppliers' contribution to quality or service of the industry products
- High industry cost contributed by suppliers
- High importance the industry to suppliers' profit

**Power of suppliers (Packaging)**
- Few key suppliers
- High availability of substitutes of suppliers' products
- High differentiation and switching costs of suppliers' products
- No threat of suppliers forward integration
- No industry threat of backwards integration
- Low suppliers' contribution to quality or service of the industry products
- Medium industry cost contributed by suppliers
- Low importance the industry to suppliers' profit

**Intensity of Rivalry**

**Rivalry Among Competitors**
- High concentration and balance among competitors
- Low industry growth
- High fixed / storage costs
- Low differentiation
- High switching costs

**Barriers to Exit**
- High asset specialization
- High fixed exit costs
- No government or social restrictions
- Low emotional barriers

**Industry Competitors**
- High bargaining power of buyers

**Substitutes**

**Availability of substitutes**
- High availability of close substitutes
- Low switching costs
- High substitute producer's aggressiveness
- High substitute price / value ratio

**High substitute threat**

**Buyers**
- Power of buyers
The power of suppliers

Before we analyze the power that suppliers have on the industry, it is important to mention that even though this industry relies on many different types of suppliers, two of them are of outmost strategic importance: grape/must suppliers and package suppliers (bottles, flexitank, tanktainer, etc.). An important difference between these two suppliers must be made, not only because grape supplies have a major impact on the quality of the final product (see Table 2), but also because while grape and must supplies are agricultural products and are produced specifically for wine-making, the packaging supplies are manufactured products. As we will see, this has a major impact on the power that each type of supplier can exert on the industry.

Grape / must suppliers

The facts that that a) grape/must suppliers contribute to approximately 40% of the production cost of table wine (see Table 1), b) the quality of their supplies have a direct impact on the quality of the final product, and c) that there are no direct substitutes to their products, most certainly suggest that these suppliers should have a high bargaining power against the industry. Nevertheless, a more in-depth analysis of the strategic position of grape/must producers on the wine supply chain, and the complex inter-organizational relationships between them and the wineries suggest that this might not be the case.

According to the INV[11], during the year 2000, 33% of the 21,575,015 quintals of grapes specifically grown for wine production in Argentina were supplied to wineries from self-owned vineyards, 17% where bought from 3rd. party suppliers, and 50% were “third party”, or “custom crush”. Furthermore, for the same year, there were 25,180 vineyards and 1161 wineries registered with the INV, which yields a mean of around 22 vineyards per winery.

Even though no statistic could be found that relates these values to the type of wine being produced, and the fact that these numbers must be handled carefully as many unregistered vineyards and wineries certainly exist, it can be inferred from the bibliography and specifically from the interviews held in Argentina that most of the supplies for premium wine production come from self-owned vineyards, and certainly are not processed as “third party” grapes. Therefore, these numbers probably apply mostly to the table wine industry.

11 Grapes processed by wineries for the grape growers.
Unlike producers of premium wine, table wine producers can accept, to some extent, differences of quality among grape or must suppliers [21]. Not only is the quality of the wine itself not as important as in the case of premium wines, but also the quality of the final product can be adjusted (again, to some extent) throughout the production process. Geographic location (in terms of climate and proximity to the winery) is not as relevant as in the case of premium supplies, which broadens the number of qualifying suppliers even more. Lower supplier switching costs and a broader base of qualifying suppliers means that long term relations with grape or must suppliers are not as critical to these wineries as they are for premium wine producers, and the relation between wineries and suppliers becomes similar to those of an open market. Working with a number of different suppliers seems to be a logical strategy to follow by producers of table wines, as they enable them to produce large volumes of wine using less capital (an therefore facing less financial risks), they have a better bargaining power against grape growers, and they can better manage capacity and develop hedging strategies by getting supplies from different regions.

On the other hand, grape suppliers tend to develop in clusters (see Table 3), in locations were natural factors allow vines to grow (Mendoza and San Juan together hold 87% of the total country’s vineyards). Under these circumstances, and given the fact that grape quality is not of utmost importance and not much capital is needed to grow a small vineyard, almost anyone in these areas, by using some of its spare time, can grow a vineyard in his backyard\textsuperscript{12}. This factor tends to lower the price of grapes and is a major problem for professional grape growers. This holds especially true if we keep in mind that it takes about 5 years to bring the vines into production, and once the vines yield grapes, there are almost no associated costs for selling the production (the vines as there, and it becomes a decision in terms of throwing them away, or selling them).

\begin{table}[h]

\centering
\begin{tabular}{|l|c|c|c|c|c|c|}
\hline
State & Wineries & Vineyards & Acreage & Grape (QM) & Production & Must (HL) \\
\hline
Mendoza & 824 & 16,196 & 143,052 & 16,561,124 & 10,978,055 & 2,206,205 \\
San Juan & 236 & 6,086 & 45,951 & 6,768,773 & 3,907,009 & 1,070,235 \\
Others & 104 & 3,416 & 15,130 & 1,268,263 & 950,120 & 23,310 \\
\hline
\end{tabular}

\textit{Source: Instituto Nacional de la Vitivinicultura (INV), for year 2001}
\end{table}

\textsuperscript{12} Although this seems to be the case in Mendoza, this issue might not hold true in countries like France, were available land for grape growing is limited, and the average price/acre ratio is much higher.
On one side, wineries buy 96% of the total grape production, leaving 1.8% for table grapes and 2.2% for raisins (see Chart 1), and this gives wineries an important bargaining power against grape growers. Furthermore, they take advantage of multiple suppliers in order to be able to get an even better bargaining position and as a hedging strategy against supply shortages. On the other side, grape growers contribute substantially to the quality of the wine production and account for about 40% of the product’s cost. It is probably because of this that the wine industry is full of examples of forward and backwards integration between wineries and grape growers, and processing “third party” grapes for grape growers is one of the many solutions that this industry has found to solve this still on-going problem regarding managing long-term relations between wineries and grape growers.

Following ideas presented by Porter in [32], we can see how the grape growing business, with low barriers to entry and high exit barriers yield to unstable, low profits. Probably the only times during which grape growers can exert a higher bargaining power over the wineries is either during high demand or low production periods.

**Chart 1**

![Argentina - Vine Production (by type)](image)

*Source: Instituto Nacional de la Vitivinicultura (INV)*
Packaging Suppliers

Table wines can be sold either packaged (mostly bottles, damajuana\textsuperscript{13}, bag-in-a-box or tetra-pack) or as bulk (Flexitank, Tanktainer, Barrels, etc.). While packaged wine is targeted to be sold directly in retail markets, bulk wine is usually sold mostly to export markets (see Chart 2) or to local wineries, wine brokers, or wholesalers that bottle it under their private label.

Chart 2

\begin{center}
\begin{figure}
\centering
\includegraphics[width=\textwidth]{chart2.png}
\caption{Wine Sold to Argentinean Market (by Package)}
\end{figure}
\end{center}

\textit{Source: Instituto Nacional de la Vitivinicultura (INV)}

In any case, these are all manufactured products (supply is more constant) and the relation between wineries and packaging suppliers is different from the relation that wineries hold with grape or must suppliers.

The most important aspect is the fact that there is no risk of forward integration from the suppliers. Clearly, producers of packaging materials are in an entirely different business than that of the wineries. They are usually concentrated in a few suppliers, and the wine industry represents only a small portion of their total target market.

In the case of bottles, for example, there are only two manufacturers in Argentina, and they produce bottles for all industries \textsuperscript{[33]}. Even though some bottles are imported (mostly from the EU), their price is too high for their use in table wines and for most

\textsuperscript{13} A five-litter, low quality and low cost glass or plastic bottle with screw-cap.
premium wines. Clearly this does not allow wineries to have a low bargaining position with these suppliers. Furthermore, as the wine industry represents only a small portion with regards to their target market, there is a limit to available designs and package types, as producers are not willing to manufacture a specific type of package for any given winery.

**Table Wine Substitutes**

Substitutes for table wine are many, and they are probably the main cause for the decline in global wine consumption [34][35][36] (see Chart 3). Furthermore, Table 4 shows how the dynamics of premium and table wine market differs: while table wine consumption (by volume) has been clearly on a downwards trend during the past 20 years, premium wine has increased about 110%, and this also suggests that both face different substitute products. If we take table wine as a beverage that is intended to be consumed with every day's meal, then the major substitutes are bottled water, soft drinks, juices, spirits, etc.

All of the above mentioned substitutes belong to the spirits industry in particular, and each has a different structure and target markets. Nevertheless, it is worth pointing out that substitutes are many, competition between industries is fierce, and switching costs for both, the end customers and the retailers are very low.

An important factor to keep in mind is the high segmentation of the wine industry (1179 wineries in year 2002) and its product spread. While most of the wine's substitutes come from industries that are dominated by a few major players (i.e. bottled water and soft drinks), this is not the case for the table wine industry, where many smaller wineries exist, and no organization has enough power as to exert pressure downstream on the supply chain or lead the industry towards a specific goal through the marketing campaigns we see for other beverages.

Furthermore, as new specialized beverages get their way to the market (i.e. Gatorade and Speed), wineries seem to be facing a clear marketing limit regarding product innovation.
Table 4

Wine Sold to Argentinean Market (in hectoliters)

<table>
<thead>
<tr>
<th>Year</th>
<th>Table</th>
<th>Premium</th>
<th>Sparkling</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>19,021,115</td>
<td>1,476,068</td>
<td>40,388</td>
<td>126,915</td>
<td>20,648,486</td>
</tr>
<tr>
<td>1980</td>
<td>19,389,667</td>
<td>1,513,082</td>
<td>33,449</td>
<td>135,482</td>
<td>21,071,880</td>
</tr>
<tr>
<td>1981</td>
<td>19,017,905</td>
<td>1,826,664</td>
<td>45,994</td>
<td>132,082</td>
<td>21,022,645</td>
</tr>
<tr>
<td>1982</td>
<td>18,789,115</td>
<td>1,983,058</td>
<td>56,223</td>
<td>175,476</td>
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<td>117,989</td>
<td>44,796</td>
<td>11,984,496</td>
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</table>

Percent Change

<table>
<thead>
<tr>
<th>Percent Change</th>
<th>-54.24%</th>
<th>111.52%</th>
<th>192.14%</th>
<th>-54.70%</th>
<th>-41.99%</th>
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</thead>
<tbody>
<tr>
<td>Percent Contributed</td>
<td>72.60%</td>
<td>26.04%</td>
<td>3.98%</td>
<td>0.37%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Source: Instituto Nacional de la Vitivinicultura (INV)
New entrant’s threat

The two major barriers to entry for this industry are the capital needed to set-up and maintain the winery’s operations, and the access to local distribution channels.

According to Euromonitor, during year 2000, 85% of all table wine in Argentina was sold through Supermarkets and small food outlets, and only 7% of the total wine production was distributed to export markets. Supermarkets are in the position to exert a huge amount of pressure over the wineries and they demand products with high turn-over ratios. With all the competing wineries trying to push their products upstream on the supply chain, new wineries find it hard to convince retail channels to carry their new products.

Capital investments present another issue, not only for the capital requirements of setting up the winery, but for the capital intensive nature of the business. Wine is produced only once a year and enough inventories must be kept to satisfy demand during the rest of year. According to the INV, by the end of September 2003 (about 6 months after the crush) Mendoza and San Juan held inventory levels of 10,974,089 Hectoliters, which accounts for 84% of the production of wine for 2002 (2003 production volumes were not published at the time this thesis was written).

Besides these two issues, no other significant barriers to entry can be found. There is no proprietary technology needed to produce the wine, know-how is readily available and besides the above mentioned issues, buyer’s switching costs are insignificant.

The power of buyers

As stated before, table wine is produced to be sold either packaged for retail channels or in bulk for wineries or wholesalers. This applies for both, local and export markets.

In the case of wine that is sold to local wineries (mostly for blending and capacity management issues), wine is usually sold through brokers, or directly to the winery. Fierce competition among wineries, and the fact that there is no brand differentiation (at this point of the supply chain wine is mostly seen as a commodity product) tends to keep prices low. Nevertheless, the bargaining power of bulk wine sellers is directly related to, and fluctuates with the overall undersupply or oversupply of wine along the chain.

In the case of wine that is sold to retail channels, wineries have little (if any) bargaining power. Again, this type of wine is perceived as a commodity, with low switching costs from the side of the buyer, and is sold by its price. Furthermore, food stores (and specially supermarkets) have a wide array of suppliers to choose from.

Interestingly enough, there has been no attempt of backwards integration from the supermarket industry (as opposed to soft-drinks). This might probably be due to the
complexities of managing supply uncertainty and the complex inter organizational relationships that emerge as a consequence of this, and the fact that demand for table wine is clearly on a down trend. Threats of backwards integration have only gone to the point of Importers or supermarkets to buy bulk wine and bottle it under their private label.
The Premium Wine Industry

Figure 3

**Barriers To Entry**
- Economies of scale can be achieved, but are irrelevant
- High product and brand differentiation
- High capital requirements
- Low switching costs from buyers
- No channel lock-in
- No proprietary technology
- Low experience and learning effects
- No material / location lock-in

**Government Action**
- No industry protection
- Moderate industry regulation
- Easy foreign exchange & ownership
- No assistance provided to competitors

**New Entrants**

**Rivalry Among Competitors**
- High concentration and balance among competitors
- Low industry growth
- High fixed / storage costs
- High differentiation
- High switching costs

**Barriers to Exit**
- High asset specialization
- High fixed exit costs
- No government or social restrictions
- High emotional barriers

**High entrant threat**

**Industry Competitors**

**Intensity of Rivalry**

**High substitute threat**

**Suppliers**

**Power of suppliers (grapes)**
- Key suppliers of grapes
- Low availability of substitutes of suppliers' products
- High differentiation and switching costs of suppliers' products
- High threat of suppliers forward integration
- High industry threat of backward integration
- High suppliers' contribution to quality or service of the industry products
- High industry cost contributed by suppliers
- High importance the industry to suppliers' profit

**Power of suppliers (Bottles & Corks)**
- Key suppliers
- Low availability of substitutes of suppliers' products
- High differentiation and switching costs of suppliers' products
- No threat of suppliers forward integration
- No industry threat of backward integration
- High suppliers' contribution to quality or service of the industry products
- Medium industry cost contributed by suppliers
- Low importance the industry to suppliers' profit

**Substitutes**

**Availability of substitutes**
- High availability of close substitutes
- Low switching costs
- High substitute producer's aggressiveness
- High substitute price / value ratio

**High bargaining power of suppliers**

**Buyers**

**Power of buyers**
- Low number of key buyers
- High availability of substitutes
- Low switching costs
- Low threat of buyers' backward integration
- Low threat of industry forward integration
- High contribution to quality to service of buyers' products
- Relative contribution of buyers' cost to the overall industry costs
The power of suppliers

As we saw in the analysis of the Argentinean table wine industry, winery suppliers can be categorized in two major groups: suppliers of grapes and other key suppliers of manufactured products. This difference needs to be made mostly due to the strategic importance of grape suppliers, and the fact that grapes are an agricultural product, and hence the supply is constrained by factors that are much more difficult to control than those of manufactured products.

This difference also applies to the premium wine industry, although the bonds between the wineries and their suppliers are tighter, built around long-term goals.

Grape / must suppliers

There are two main differences between producers of table wine and producers of premium wines in terms of how they relate with grape growers. The first difference is that producers of premium wines tend to get grape supplies from their own vineyards. The second is that, in the case of buying supplies from third party grape growers, they are interested in building long-term relationships with these suppliers, which changes the whole dynamics of the relationships.

The more premium the wine, the more it is sold by its "quality", or "characteristics" than for its price, or despite its price. Even though the array of characteristics include factors such as geography, soil, etc., it is safe to say that for premium wines, grape quality is the most important factor to be considered by the winery, as it has a direct impact on the final quality of the product. Production processes do not allow any kind of chemical compensation or manipulation and therefore special care must be taken during the grape selection process.

Unlike producers of table wine, premium wineries need to be able to control grape production processes. In many cases, this has led wineries to grow their own grape supplies. In other cases, wineries have built strong, long-term relations with their suppliers. Wineries oversee the supplier's production processes and work together on long-term goals such as to decide which grape varieties to produce and how much quantity to produce.

Having said this, conflicts between grape growers and wineries still arise, mostly during times when the variation between production and demand is high. Chart 4 shows total production of grapes, wine, and total demand for wine in Argentina between 1979 and 2002. As we can see, while demand is very stable (once we have subtracted trend variations), production volumes fluctuate heavily. Not provided in this chart, must
production volumes during this same period suggest that that wineries and grape growers use must production as a hedging strategy between wine and grape production levels. Must can be sold or exported for the production of other goods, such as fruit juice, vinegar, etc.

**Chart 4**

![Graph showing Argentina's wine capacity management with trends marked for wine production, demand, and grape production over years from 1979 to 2001.](image)

*Source: Instituto Nacional de la Vitivinicultura (INV)*

In the case of overproduction, wineries tend to follow three major strategies: a) refusing to buy the excess production, b) producing excess wine (and therefore buying more grapes than they need), or c) using the excess grapes to produce wine for the grape grower that he then has to sell to the market. Which strategy each winery follows seems to be directly related to the culture of winery itself, and the strategic importance of each supplier.

In the case of supply shortages, grape suppliers try to get more value for their products, resulting in renegotiations of prices with wineries. Nevertheless, the fact that wineries contribute to most of the profits of the suppliers forces both parties to get to an agreement in most of the cases.

As we can see, the dynamics between wineries and grape growers differ between table and premium wineries. Quality assurance and long-term goals result in more incentives for wineries and grape growers to solve inter-organizational problems and set long term goals. Grape growers face less threat from improvised grape growers as they can rely on strong relationships with their buyers who, at the same time, face larger switching costs.
Cork and Bottle suppliers

Relationships between other key suppliers and wineries do not defer significantly between producers of table wine and producers of premium wine. Perhaps the major difference is the role of the cork supplier, which most producers of table wine do not have to deal with (only in very specific cases table wine is packaged in bottles with cork stoppers).

Even though many different bottle-stoppers have been developed during the last years to replace natural corks (plastic corks, screw-caps, etc.), premium wine is always bottled using corks, mostly because of marketing reasons. Cork suppliers are of a strategic importance for wineries, as the quality of the cork can affect the quality of the wine. Although much research is still being done in this area, it is known that bad quality corks can not not change the chemical composition of wine during time, but can also let air into the bottle.

Also, in recent months, and mostly as a consequence of the devaluation of the Argentinean peso against the U.S. Dollar and Euro, cork suppliers are starting to play and important economic role for premium wineries, since cork supplies are imported, and their prices are set in U.S. Dollars.

In general, it is safe to say that besides the role of the cork supplier, the difference between different types of wineries and their key suppliers is mostly a consequence of premium wineries having more specific quality assurance processes in place. For example, premium wineries inspect each bottle they receive, making sure that their shape is right, that it isn’t scratched, and that the glass does not contain any bubbles. This forces wineries and suppliers to work closer in order meet each others expectations.

Premium Wine Substitutes

If we consider substitute products of premium wine to be other, non-wine beverages, wine has certainly no substitutes. Premium wine has a wide array of characteristics that makes it a unique product difficult to substitute with other beverages and usually, customers who are seeking to buy wine will not end up buying another type beverage. Having said this, I believe that considering other types of beverages as wine substitutes would not allow us to perform an accurate analysis of the industry and therefore I consider premium wine substitutes to be all premium wine labels or brands. These are the real substitutes that wineries face, and competition is fierce.

This view of substitutes is also supported by the information presented in Chart 3, were we can see that premium wine has been on a constant growing trend for the last 30
years (although this chart applies only to the Argentinean market, this is also a worldwide trend). While table wineries face competitors from outside the industry, premium wineries seem to face competition from other wine labels inside the industry.

Another interesting factor is that while total wine consumption from 1995 to 1999 fell by 3%, the total market value raised by 38%, and the price per liter by 41%, as we can see in Table 5. Market growth seems to be mostly driven by premium wines, which makes competition in this segment even higher.

Table 5

<table>
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<th>Year</th>
<th>Table (Hl)</th>
<th>Premium (Hl)</th>
<th>Others (Hl)</th>
<th>Value</th>
<th>Price Per Liter</th>
</tr>
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<td>1995</td>
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<td>305,128</td>
<td>$2,352.90</td>
<td>$1.72</td>
</tr>
</tbody>
</table>

Percent Change | -11.87% | 31.78% | 75.76% | 37.85% | 41.26%

Source: Instituto Nacional de la Vitivinicultura (INV) and Euromonitor

I have already discussed in chapter 2 issues related with product breath in the wine industry, and how they affect the supply and value chains. The options that a buyer faces when shopping for a bottle of premium wine are enormous. Premium wine is a highly differentiate dproduct, and this is mostly due to the way it is marketed (country, region, grape, vintage, etc.).

All brands are constantly fighting for a portion of their market, and here is were brand management and creation becomes of outmost importance [20]. Nevertheless, even in the premium wine sector, further segmentation needs to be done, as a wine that sells for a retail price of $USD 10.00 is different from one that sells at $USD 50.00. Competition is fierce at all levels, and “brand loyalty” is a word that does not seem to exists among buyers of wine, regardless of its price. Having said this, we need to take into account that competition at the $USD 10.00 level is driven by different factors than competition at the U$D 50.00 level, where fewer brands fight for a larger piece of a smaller market.
New entrant’s threat

New entrants for the premium wine industry must be divided into two different groups: companies that enter the industry to establish a business on a long term basis, and individuals who enter the industry pursuing the personal goal of having their own winery.

The differences among these two groups are many. The first usually has a more systematic (or “business like”) view of the industry, and considers factors such as capital requirements, financial aspects, demand trends, etc.. The second is mostly based on emotional factors. In other words, while entry barriers are carefully analyzed by companies prior to deciding to invest in the industry, they are seldom considered by individuals who are driven by their own desire of owning a private vineyard.

Wine history is full of examples of how both of these groups contributed to the development of the industry. Visionaries who spent most of their life an fortunes producing premium wine without considering the financial return of the business (like Nicholas Longworth, who played a major role in the early development of the wine industry in the U.S. [21]), played a fundamental role as leaders in helping the industry to develop during times of trouble, developing new standards and setting long term goals. On the other hand, companies that view the industry from the perspective of building a long term business provide the stability required for the industry to continue its development.

From the bibliographic review and the interviews held with companies, it can also be inferred that the amount of new entrants to the industry seeking to fulfill their personal goal is related to social trends, and therefore enter the industry in “waves”. An example of this is the amount of new “boutique” wineries that were founded in California between 1965 and 1975.

Argentina itself seems to be facing one of these “waves” while this thesis is being written, as the devaluation by 300% of the Argentinean Peso against the U.S. Dollar after 10 years of parity (1.00 $A = 1.00 USD) makes wine look an interesting and profitable export good\textsuperscript{14}. Although probably not in the premium wine segment, Companies like La Inversora are offering their services to entrepreneurs who want to start their wine making business quickly, which range from the rental of vineyards, to the management of the whole wine making process.

\textsuperscript{14} This generalized opinion is probably built on the lack of understanding of the dynamics of international wine markets.
The production of premium wine is a long term business, and hence it is extremely capital intensive. Brand recognition and loyalty is mostly achieved through word-of-mouth, and production processes, like wine aging and vineyard growing, that can take years. Most entrepreneurs don’t recognize these factors beforehand and therefore fail to establish their businesses on the long term.

Nevertheless, some of them do succeed and become well established businesses. Furthermore, some of these wineries might also produce wine of lesser quality that sells faster and in larger volumes as a hedging strategy to finance their high quality labels.

Interestingly enough, from the information gathered for this thesis it can be inferred that most producers of premium wine build their companies by evolving them from a personal project into a larger, organizational scale. Large organizations entering the market following M&A strategies, like Coca-Cola in the U.S., or large alcohol distillers (mostly between 1935 and 1955) [21], have usually ended up selling back the companies, finding the industry hard to understand, or simply not as attractive as their other businesses.

**The power of buyers**

The power that buyers exert over the producer of premium wines seems to depend on three major factors: the sub-segment in which the wine is positioned, brand awareness and loyalty, and whether if the buyer is local or international.

Following the ideas presented in previous paragraphs, the power of buyers is related to availability of substitutes. Again, the lower the price segment, the higher the bargaining power of buyers.

Even though the premium wine industry is characterized by the building of long term bonds between wineries and their suppliers, buyers (usually wholesalers or large retailers) clearly favor products with high turn-over ratios, and this is were wineries usually start facing problems to push their products through the chain.

In order to solve this problem, wineries seem to follow two main strategies: either pushing the product through the chain by offering discounts or other marketing incentives to wholesalers and retailers, or following pull strategies by creating brand awareness in the market, creating incentives for wholesalers and retailers to carry their products.

Having said this, the bargaining power of buyers is high, mostly due to the high availability of substitutes. Only in the case of super-premium wines or wines with high turn-over ratios and brand awareness can the winery avoid this problem.
Chapter 4: 
The U.S. Distribution Tier

Introduction

This chapter focuses on the analysis of the U.S. distribution tier of the global wine supply chain. We will analyze which companies comprise it, how they interact, and what are the causes of the process duplication depicted in Figure 4.

From the legal issues raised in chapter 2, we already know that the U.S. wine supply chain is constituted by three major players: wine importers, distributors and retailers, and their relationships are showed in Figure 4. Interestingly enough, aside of the strong legal constrains in place that play a major role in the shaping of this part of the chain, the U.S. distribution tier is similar to many other CPG supply chains, and the issues raised previously regarding wine being an agricultural product are not so obvious.
**Order Flow**

This part of the global supply chain follows mostly a pull strategy. Customers place orders with retailers, which are mostly supermarkets, specialty shops, restaurants and hotels. These orders are almost always placed in-site, during customer’s visits to the retailer’s shop, as direct shipping of wine to the end-customer is legally prohibited in most states, and it is not until recently that some companies have found some ways to work around this issue in some specific cases.

In the case of small retailers, the wholesalers’ sales staff visits them on a regular basis, usually building personal relationships with them. During this visit, the seller goes through the retailer’s inventory, suggesting replenishment of products as needed, and suggesting orders for new labels that might have come out based on promotions or other issues, and also getting special orders that the retailer might want to place based on their clients’ demands. In the case of larger retailer chains, communication is usually different due to formal processes in place at the retailer tier, and IT systems. Nevertheless, the role of the wholesaler is mostly the same.
Importers, at the same, receive orders from wholesalers (usually once or twice a month), and place orders to wineries overseas based on the demand they receive from them, and their current stock levels.

**Product Flow**

As supply chain management concepts and strategies are mostly targeted at raising the profits of the supply chain by looking at the chain as a whole instead of as a collection fragmented of companies, it is important to know and understand which players own products, when, and if they need to keep safety inventories or not.

In the case of the wine supply chain, products flow in the inverse direction than orders. Wineries send (not to be confused with sell) their products either to importers or wholesalers. In any case, almost all Argentinean wineries sell F.O.B., which means that they hold the wine until it gets to the origin port (usually Buenos Aires, although a small amount of wineries in Mendoza send wine through Chile). This has an important impact on the supply chain, as it means that wineries do not know (and sometimes do not care) what happens to the wine once it leaves the country. Some U.S. importers, like Argus-Corp who understands the complexities of the Argentinean transport system go as far as to buy ex-Cellar[37], which means that they own the product as soon as it leaves the winery.

As said before, some importers get to actually own the product and even carry safety inventories, while others act mostly as an administrative partner of the winery. In the particular case of the U.S. this is an important difference, as the legal issues of the process are much more complicated for those that own alcohol beverages than for those that do not.

Lead times between importers and wineries are also important, as the average lead time is about 60 days from the time the wine leaves the winery to the moment it gets to the wholesaler or importer distribution center, which is always located in the U.S.

Importers that carry inventories decide the order quantity based on actual demand from wholesalers and forecasts mostly based on their own experience and their current inventory levels.

Once the wine is shipped from the importer, it becomes part of the wholesaler’s own safety stock, and this is one of the reasons for which wholesalers want to carry only wines with high turnover ratios. In the same way that importers do, wholesalers decide on order quantities based on retailer’s demands, and their own forecasts based on experience and inventory levels. Lead time can be also a critical issue in this case, as it usually varies between 5 and 14 days, depending where the wholesaler and the importer are located.
Furthermore, retailers also hold safety stock, even supermarkets, restaurants, hotels and catering companies. While large retail chains might have computer systems in place that can electronically send replenishment orders to the wholesaler, the wholesaler’s sales staff plays a major role with smaller retailers, restaurant and hotels in terms of reviewing their current inventory levels. This is done informally during or before the sales meeting that the staff holds regularly within the retailer’s shop, and during which the retailers places the next order. Furthermore, depending on how specialized the restaurant, hotel or retailer is, part of this inventory might be necessary as a way to let the wine rest before it is sold to the end customer.

**Supply Chain Atomization**

Due to legal constraints, even though retailers and wholesalers can have operations in more than one state at the same time, they cannot share operations between their companies, and therefore it becomes extremely difficult for them to achieve economies of scale. This has two major impacts on the supply chain. The first one is that it works as a barrier to entry, deterring larger companies already operating in other wholesaling and distribution businesses to enter the industry. The second one is that it also generates a barrier for companies to invest in computer systems and other assets that would enable them optimize their operations.

This atomization issue taking place in the wine supply chain is not to be minimized. Almost all of the progress done by companies, and current research in top universities around the world regarding supply chain management topics are, at least somehow, related to enabling companies to achieve economies of scale without increasing operation costs, or maintaining service levels and sales volumes while lowering operation costs. Smaller companies that engage in these kinds of practices usually do so in order to conform to a given standard imposed in the industry by a leading company.

In any case, few supply chain management projects can be (or are worth) undertaken by small companies, and knowing in advanced that economies of scale cannot be applied is certainly and important factor to consider before embarking in such an adventure.

**Information Sharing and Collaboration**

If we look at the wine supply chain situation from the perspective of most others U.S.-based CPG’s supply chains, information sharing and overall collaboration hardly takes place between tiers. Information between wholesalers and retailers is shared mostly in an informal way, during the sales’ staff visit to the retailer’s shop. During this meeting, the
wholesaler checks inventory, gets new orders, and also gets information about current trends in market demand.

The wholesaler, on the other hand, sends a bi-weekly or monthly report to importers and wineries in order to let them know about current product demand. In most cases this report does not include much useful information (besides the quantity of products sold), but it sometimes can include other information such as which retailer, in which geographical zone bought a given product.

It is this why importers and wineries try to work closely with wholesalers, sometimes even accompanying their sales’ staff during visits to the retailers in order to get market feedback.

Lack of interest and conflicting interests between tiers might not be the only cause for this problem, as companies seem to lack of the necessary IT systems that would enable them to share more information, more rapidly. Again, lack of investment in this field is probably due to the fact that economies of scale cannot be achieved. Furthermore, the tier that is in the best position to force other organizations along the chain to adopt standards, namely the wholesaling tier, is atomized (in comparison with wholesaler in other industries) and does not have enough incentives to optimize its operations.

In this particular case, change might probably come either from large retailing companies that do have IT systems in place and might start requiring wholesalers to comply with them, or from other, 3PL companies that might enter the supply chain trying to take advantage of this situation.

**A note on the retailer tier**

I have decided to exclude the analysis of the retailer tier from the overall analysis of the wine supply chain mostly due to the fact that there are structural differences in this tier among different states.

While in some states this tier is completely monopolized by the government, in other states retailers need to obtain a special license that enables them to sell alcoholic beverages. As the price for these licenses vary between states, so do business models and the overall economics of the alcohol retailing business.

Most of the analysis done for this research project relies on empirical information gathered through interviews and the bibliographical review listed at the end of this document. Performing a detailed analysis on the retail tier would have proven outside of the
scope of this thesis. Furthermore, even though the retail tier plays an important role in the overall supply chain, most of it can be seen and analyzed from the perspectives of the importer and wholesaler tiers.
The Wholesaler Tier

A close look at Figure 5 certainly suggests that the wine wholesaler tier seems to be a good place for anyone to start a new business. Low bargaining power of buyers and suppliers and low substitute and entrant threats is considered paradise by most entrepreneurs. Nevertheless, as we will see, this is not a result of wholesalers possessing a unique knowledge, experience, infrastructure, or other asset that enables them to control the industry, but the result of strong legal restrictions and protection, combined, in many cases, with deep-rooted bonds between wholesalers and the government.
Figure 5

**Barriers To Entry**
- Economies of scale are difficult to achieve due to legal restrictions.
- High capital requirements
- Medium switching costs from buyers
- Sales Channel lock-in
- No proprietary technology
- High experience and learning effects
- No material / location lock-in

**Government Action**
- Industry protection
- Very High industry regulation
- Difficult foreign exchange & ownership
- Informal assistance provided to competitors

**New Entrants**

**Rivalry Among Competitors**
- High concentration and balance among competitors
- Low industry growth
- High fixed / storage costs
- Low differentiation
- High switching costs

**Barriers to Exit**
- High asset specialization
- High fixed exit costs
- Government and social restrictions
- High emotional barriers

**Industry Competitors**

**Intensity of Rivalry**

**Suppliers**
- **Power of suppliers (grapes)**
  - Small number of key suppliers
  - High availability of substitutes of suppliers' products
  - Low differentiation and switching costs of suppliers' products
  - Low threat of suppliers forward integration
  - Low industry threat of backwards integration
  - High suppliers' contribution to quality or service of the industry products
  - Low industry cost contributed by suppliers
  - High importance the industry to suppliers' profit

**Low bargaining power of suppliers**

**Low threat entrance**

**Low bargaining power of buyers**

**Low threat substitute**

**Buyers**

**Power of buyers**
- Small number of key buyers
- Low availability of substitutes
- Low switching costs
- Low threat of buyers' backward integration
- Low threat of industry forward integration
- High contribution to quality to service of buyers' products
- Low contribution of buyers' cost to the overall industry costs

**Substitutes**

**Availability of substitutes**
- Low availability of close substitutes
- High switching costs
- High substitute producer's aggressiveness
**New entrant’s threat**

As we have already discussed in Chapter 2, government and other legal institutions play a major role in the shaping of the wine supply chain, and the wholesaler tier is one of the places where this becomes most evident.

This legal system was first put in place after repeal in 1933. During prohibition, alcohol distribution was controlled mostly by mafia-like organizations, and the main objective of this system was to force rivalry among organizations in the same and across tiers, as it was thought that not letting companies to achieve monopolies would force the industry to quickly become an open-market, deterring these mafia-like organizations to refocus their operations in this new, open market.

Having said this, it becomes evident that the wine industry in the U.S. still suffers from the consequences of its dark years at the beginning of the 20th Century, and the wholesaler tier is not an exception.

In most states, this industry is dominated by two or three major companies, which might also have separate operations in other states. It is interesting to note that none of these companies are publicly held. On the contrary, these are family businesses that have been passed from one generation to the other, and that have deep rooted bonds in local society and government.

Although different exceptions apply in different states, in general it can be stated that wineries have to sell their products through wholesalers, who, at the same time, sell their products to retail stores, restaurants, hotels and catering companies. Wineries cannot bypass wholesalers even if they introduce diseconomies of scale. Unlike other industries, where organizations are implementing novel strategies to collapse the supply chain into as few organizations as possible, in the wine chain the legal system acts as a major safeguard for the wholesaling business, while at the same time reducing any incentives for the industry to optimize its operations.

The wine wholesaling business can be seen, in general terms, as any other logistics and distribution business, and it is therefore logical to think that any company that already operates as such might be tempted to enter the wine industry and take advantage of the above mentioned issues. However, the fact that a company needs to obtain a license from the state in which it wishes to establish operations in order to be able to act as wine
wholesaler, and that it cannot distribute operations among different states\textsuperscript{15} and thus gain economies of scale, plays a major role in deterring new entrants.

Having said this, and as we will see in the next chapters of this thesis, there are some new and smaller wholesalers that are taking advantage of new enabling technologies and novel business strategies in order to optimize their operations as much as possible. IT technologies, information sharing along the chain, and overall globalization pose a threat to organizations that do not wish to change, and it still remains to be seen whether if these smaller wholesalers will be able to take advantage of this situation or not, and how.

\textbf{The power of suppliers}

Wholesalers' suppliers are either local (U.S. based) wineries or wine importers that work closely with international wineries to sell their products in local markets. The power that these suppliers can exert on wholesalers is directly related to what is described in the “Power of Buyers” section, in chapter 3.

In the particular case of the U.S. distribution chain, and according to what was explained in the above paragraphs, wholesalers seem to be on a clear consolidation trend. According to [20], the U.S. wine distribution chain can be seen as a sand clock, with numerous wineries / importers in the top, few wholesalers in the middle, and numerous retailers in the bottom.

Once again, wholesalers usually carry a wide portfolio of wine brands and labels, and importers can follow push (discounts, promotions, etc.) or pull (generating brand awareness) strategies in order to convince the wholesaler to carry their wines. In any case, it must be stated that achieving success in the implementation of any of these strategies does not give the wineries “bargaining power” over wholesalers, but instead is targeted at “convincing” the wholesaler to invest resources in promoting a certain brand.

The power that wholesalers have in promoting a certain label is not to be minimized, and as a matter a fact, the current consolidation in the wholesaler tier plays an important role in the shaping of the supply chain, and must be considered in any strategy that a winery might design in order to promote their labels. This particular issue was raised in many of the interviews I held with companies both, in the U.S. and Argentina. Following descriptions by [11], and Prof. James Lapsley, it and can be described in the following practical example:

\textsuperscript{15} In most cases, companies that wish to establish operations in different states need to establish different companies for each state in which they operate, and cannot leverage from having a global infrastructure.
A wholesaler's person has a 30 minutes interview with one of its clients, the owner of a retail shop somewhere in the U.S. He arrives 10 minutes before the scheduled time, and spends his first 15 minutes going through his client's inventory, to see which products need to be replenished and which are not selling well.

He then spends the following 10 minutes talking with his client about life, kids, and agreeing on orders to replenish products that the retailer is already selling.

The following 10 minutes are spent in listening to the customer, and he might ask the salesperson for a particular wine he saw published in The Wine Spectator, or that an important client has asked for.

Now only 5 minutes are left. The sales person opens the wholesale catalog (which looks very much like a telephone guide) and has 5 minutes to sell one or two new labels from a list of 2,000.

What criteria is the sales person going use in order to decide which wine he will try to sell? The answer is pretty simple: it will depend on the structure of his bonus, as the salesperson is trying to optimize income. This means that attractive wines are either those that sell easily, or those that carry a certain promotion in which, for example, a given salesperson could earn some price by selling a certain amount of cases during an establish period of time.

Even though this particular example might not hold true for every wholesaler and every client, the general idea exposed here does need to be considered, and any winery that is not aware of the dynamics of this process will probably have a hard time trying to get its products to reach the market.

A special note needs to be made regarding the threat of wholesalers of backward integration with importers. Even though it is not clear to me whether if certain wholesalers have special economic interests in a specific winery, wholesalers can (and often do) act as importers and it could therefore be argued that there is a real threat of backwards integration in this case.

Nevertheless, I believe that such argument might be misleading. The wine importing business is complex. Importers need to carefully build their product portfolios, as well as their own reputation. There are many different labels out in the market for importers to represent, and different importers might or might not compete in the same category. When wholesalers decide to start their own importing business they do so under the premise that
this is a different business. While wholesaling is about product breath and location concentration, importing is about product concentration, and location breadth\textsuperscript{16}, and throughout my research I have not seen the fact that a certain wholesaler might prefer to carry the labels of its own importer as an issue for other importers.

\textbf{Wholesaler Substitutes}

Until recently, it could be argued that the wholesaler tier of the wine industry hardly had any substitutes, while many other industries are currently facing challenging changes. Organizations are using information technologies to collapse and optimize the supply chain into as few levels as possible giving birth to novel business models like those of Dell, Nike, and others. In the case of alcoholic beverages, the legal system imposed on the wine industry works a warranty and safeguard for wholesalers to keep their businesses, even if they businesses work against supply chain optimization.

Until recently there was not much that producers could do about this reality, but now that IT technologies have matured, and its capability to improve overall business processes has been proven, companies with new business models are finding their way into the industry, trying to bring some of the models and technologies developed for other industries to the wine supply chain.

In this sense, the wine industry seems to be a lager, and what changes these new companies could bring to the wine supply chain can be seen by analyzing leading industries in this field such as the computer or car manufacturing industries.

An example of this is New Vine Logistics. NVL's business model is as follows: NVL has a pick-and-pack facility in California, where wineries can store up to two pallets of their wine. When an order is placed for the winery (this order can come from any customer, retailer or wholesaler that the winery is working with), it enters New Vine's system. New Vine's system can pick wine by the bottle, consolidate the order, and while it sends the order directly to the end customer it also performs electronic transactions with partner wholesalers and retailers in different states in order to comply with current regulations.

Even though real operations and transactions are much more complex than what is described here, the important concept to keep in mind is that NVL is allowing wineries to do something they could not do before: send their wine directly to the retailer, or to the final customer. At this time, wineries can only use NVL's system for wines that sell for at least

\textsuperscript{16} Unlike wholesalers that get licenses to have operations in a particular state, federal importer's licenses are nation wide (although they also need to get licenses for each particular state).
USD15,00 a bottle, as less expensive wine cannot handle the transaction costs added by NVL’s services.

Having said this, it can be expected to see many new companies introduce novel services and systems to optimize wine distribution in the U.S. As in other industries, these services and technologies will be targeted at eliminating companies that do not add value along the chain.

The power of buyers

Buyers for the industry can be divided into two main groups: retailers on one side, and hotels, restaurants and catering companies (HoReCa) on the other. According to Euromonitor, during year 2000 20.6% of the wine in the U.S. was sold through the HoReCa channel, and 79.4% was sold through retailers, accounting for 34.3% and 65.7% of the total market value respectively [38]. The difference between these channels needs to be made, as their structures, as well as the products that they tend to buy are different.

The HoReCa channel is certainly interested in more premium products, and usually doesn’t carry wines that sell for less than USD 6.00 a bottle on a retail store. Given the high profit margins that they charge (usually between 100% and 300%, depending on the restaurant and the label), they tend to avoid wines that can be easily bought in a retail store. Furthermore, while some specialized restaurants hire wine buyers to design and buy their wine menu (and use this menu as a marketing tool), most companies tend to carry wines with high turn over ratios, based on their client’s tastes.

On the other hand, performing an analysis of the retail channel is a very complex task, as again, legal aspects need to be taken into account. While in some states (like Vermont and New Hampshire) the retail tier is controlled by a government monopoly, in most states retailers need to get a license from the state in which they want to operate, and the price they pay for this license added to other alcohol sales taxes have a strong impact the structure of the tier in each given state.

Even though the structure and the power that the retail tier can exert over wholesalers in the case of a government monopoly is different from that of a more open market, it is important to note that consolidation seems to be taking place in states where retail shops can be operated.

Consolidation on the retail tier is taking place in most industries, as distribution and large supermarket companies take advantage of economies of scale, achieving at the same
time important bargaining power against suppliers, and the wine industry is not an exception. According to [39], for year 2002, 43% of total sales (by volume) in the U.S. were done through supermarkets.

Two issues need to be taken into account: the first, that in most states alcohol retailing is permitted only through the acquisition of a special permit. The price of these permits varies from state to state, and retail chains need to analyze the economics of buying such licenses on a state by state, and location by location basis. The second is the fact that not all types of wines are sold in large retail chains and again, product spread needs to be taken into account.

The power that large retail chains have on wineries, importers and wholesalers depends on the sub-segment in which the wine is being sold. These chains usually carry wines that sells at no more than US$ 15.00-20.00 a bottle, leaving ultra-premium wines to specialized retailers, as these buyers usually develop a trust-based bond with their suppliers.
The Importer Tier

Figure 6 is a summary of the analysis of the importer tier of the supply chain. Interestingly enough, even though the importer and wholesaler tiers have evolved from the same culture, share similar histories, and are subject to similar restrictions from the legal system, their forces have developed in quite a different way. I believe this is the cause of two facts. The first is that the role of the importer is newer than the wholesalers’ and has evolved largely during the past decades. Even though global wine shipping and global trade is as old as wine itself [40], global supply chains in general have faced dramatic changes during the past decades, and the role of importers differ largely from their role 60 years ago. The second fact is that the role of wholesalers is more related to the role that informal organizations had during the prohibition era, and certainly many of these organizations converted their operations into the wine wholesaling business.
Figure 6

Barriers To Entry
- Economies of scale don't play an important role
- Low capital requirements
- High switching costs from buyers
- Sales Channel lock-in
- No proprietary technology
- High experience and learning effects
- High material / location lock-in

Government Action
- Industry protection
- Very High industry regulation
- Difficult foreign exchange & ownership
- Informal assistance provided to competitors

New Entrants

Rivalry Among Competitors
- High concentration and balance among competitors
- Low industry growth
- High fixed / storage costs
- High differentiation and switching costs

Barriers to Exit
- High asset specialization
- Low exit costs
- Government and social restrictions
- High emotional barriers

Low entrant threat

Industry Competitors

Intensity of Rivalry

Low bargaining power of suppliers

Suppliers

Power of suppliers (grapes)
- Key suppliers
- High availability of substitutes of suppliers' products
- High differentiation and switching costs of suppliers' products
- Low threat of suppliers forward integration
- Low industry threat of backwards integration
- High suppliers' contribution to quality or service of the industry products
- High industry cost contributed by suppliers
- High importance the industry to suppliers' profit

Low substitute threat

Substitutes

Availability of substitutes
- Low availability of close substitutes
- High switching costs

High bargaining power of buyers

Buyers

Low threat

High threat
New entrant’s threat

While wholesalers carry a broad portfolio of products and focus in selling it in a limited geographical area (mostly state-wide), importers usually sell to wholesalers on a national basis, but focus on building a specific portfolio of labels that they carry.

Importers seem to have two main assets on which they build barriers to entry: a unique portfolio of wine labels, and bonds with national wholesalers. Both of these assets are built over time, and rely on strong bonds with both, suppliers and buyers.

Even though a distinction between importers of table wine and importers of premium wine could be made following the same logic used for the analysis of the Argentinean wine industry, in general terms, importers carry a portfolio of wines labels that is aimed at meeting demand on most segments (i.e. product diversification), and therefore carry both types of products. Some importers specialized in super-premium wine or low-value, bulk wine do exist, but from the bibliography and the interviews held to gather information for this thesis it can be concluded that the major trend is not segment specialization and that these importers only represent a small sample.

The main trend seems to be towards importers building long-term relations with wineries, and getting involved in commercial and operational processes.

This builds important barriers to entry for this industry, as this process is usually capital intensive, builds emotional barriers to exit, and also yields in supplier lock-in, as wineries work with only one importer.

Having said this, trends do change and therefore supplier lock-in is usually only a temporary advantage. Furthermore, new wineries are founded constantly and there product availability is possible for importers that are willing to invest time and money in building a new brand.

Another important barrier to entry that needs to be considered is the connection that importers build with wholesalers over time. We have already seen how wholesalers exert their power on the supply chain, and the complexities characterizing this tier that arise from many informal processes and relationships they own.

Wholesalers already carry a wide portfolio of products, and their incentives to add yet another label are extremely low. Importers do rely on their long-term relations with wholesalers in order to introduce a new wine through the chain, and build successful marketing campaigns.
The Power of Suppliers

In general terms, it is difficult for wineries to access local importers. As we will see later, the general trend seems to be that importers build long-term relationships with wineries overseas, getting involved (to different extents) in the creation of the local brand for a given wine. Usually, many different substitutes exist for the label that a winery is trying to sell in the U.S. market, and if the winery’s proposal does not include some special value added, importers do not have enough incentives as to invest in this new relationship.

The power that wineries have over importers seems to be related to four major aspects: the segment at which the wine is targeted, the current portfolio of the importer, its local distribution power and current market trends.

Once again, the power that wineries have over importers is constrained by the type of wine they are trying to sell in the U.S. Each importer carefully builds its own portfolio of brands according to the current and future market trends that he foresees. Different characteristics in terms of rivalry among wineries and the amount of products available for that segment, and therefore it might be easier for a winery to sell a wine in one of the sub-segments than in other.

In addition, different importers carry different portfolios, and a given label might be more appealing for one importer than for another, depending on how their portfolios are structured, and their need to carry that particular label that sells in particular segment.

Also, different importers might be more appealing for a given winery, as they might have strong bonds with distribution channels for a geographical area or segment in which they are interested in. Importers in the U.S. seem to specialize in a certain segment or geographical location (in terms of the wine’s origin), and therefore they might have more knowledge and experience in selling a given type of wine.

Timing is also an important issue to consider (and this applies to all distribution tiers), as it is easier for a winery to convince an importer to carry a wine that sells in a category that is "hot", than in one that is not. In other words, a winery in Australia with a wine that sells for U$10.00 a bottle is going to have an easier time to find an importer that might need such a wine to complete its portfolio, than a winery in Chile trying to sell a wine that carries a price for U$30.00.

A perfect example of how timing can impact the selling is what happened with the Yellow Tail label, from Casella Wines, Australia: SouthCorp of Australia had acquired Rosemont, another important wine exporter in Australia. This meant that at least one wholesaler in each state in the U.S., had lost an important supplier (mostly wholesalers that
carried Rosemount wines), as by that time Australian wine were in the "hot" category. W.J. Deutsch & Sons (Yellow Tail’s importer) entered the market with this Australian wine that sold at the $8.00 price range, taking advantage of the fact that wholesalers were angry at SouthCorp, and that worked hard on pushing this new vine towards the market.

Certainly, this doesn’t mean that the success of Yellow Tail relies on its importer’s ability to take advantage of a temporary situation, but it does illustrate the importance of timing, some of which can be controlled by the winery, and some not.

**Importer Substitutes**

It is difficult to think of any organization along the wine supply chain in terms of being an importer’s substitute. First, the role of the wine importer is required by the federal law, and cannot be replaced. Importers hold federal licenses and any foreign winery that is interested in selling wine in the U.S. market needs to do so through an importer.

Having said this, importers do seem to be involved in their relations with wineries and wholesalers to different extents. Some importers work closely with wineries, building long term relationships and investing their own capital to build certain brand awareness in the market, and also helping them to understand the idiosyncrasies of the U.S. legal system to develop labels, and any other type of requirements for their products to meet U.S. legal standards. Other, specialized importers have built their image and reputation through years of experience and careful portfolio building, and this reputation becomes quickly an important marketing tool difficult to replace when trying to sell a wine to local wholesalers.

Other, less developed importers simply work as a legal (and necessary) figure organization, allowing the winery to comply to the U.S. regulation. In this case, the value added by the importer is minimal, as the winery needs to develop marketing campaigns by itself, or though a third party organization.

Less common, some importers actually buy and sell wine, carrying their own inventory and working closely with both, wholesalers and wineries to make sure that certain levels of inventory and demand are met. Others, let wineries work directly with wholesalers never getting in touch with the product itself.

In any case, the actual role of the importer cannot be substituted, due to the legal requirement of the U.S. laws. Those importers that add less value do are more prone to be backwards integrated by wholesalers that might also act as importers and that might develop strong bonds with wineries.
Chapter 5:  
Conclusions  

Introduction  

As stated in Chapter 1, one of the key ideas that drove me to write this thesis was to see how supply chain management strategies are constantly becoming more and more relevant to organizations when defining their overall business strategies. More specifically, I was interested understanding how the following issues were impacting the global wine supply chain:

- A global perspective of business strategies: how some companies in many different industries are starting to focus on supply chain profit strategies as a way to raise their own company’s profits [41] [42] [6].
- The usage of technology as a key enabler for designing supply chain strategies.
- The virtualization of the supply chain: how geographic boundaries are becoming less relevant, and companies partner with other organizations based on services and value added, and not on geographic proximity.
- The role of inter-organizational strategies such as VMI\textsuperscript{17} and JIT\textsuperscript{18}.

Some key factors of the wine supply chain and their relation to the above mentioned issues were introduced in Chapter 2. I identified these factors early during my research and decided to expose the reader to them before actually analyzing the supply chain, as I believe they play a key role in helping us to understand the current state of the supply chain.

Based on the analyses presented in Chapters 3 and 4, I will push these concepts further away in order to describe how supply chain management trends (in terms of the issues described above) are transforming the wine supply chain, and what changes we can expect in the near future.

\textsuperscript{17} Vendor Managed Inventory  
\textsuperscript{18} Just-in-time
Current Supply Chain Management Trends

From the bibliography reviewed for this thesis it can be inferred that current changes in supply chain management trends like those described at the beginning of this thesis seem to be a consequence of organizations trying to achieve two major goals: increasing profit margins to maintain growth ratios, and gaining a competitive advantage along the chain.

Keeping this in mind, there are two major factors in the wine supply chain that are affecting the way and rate at which companies adopt these new trends: the degree of atomization of the industry, and the legal aspects of production and distribution.

Industry atomization

As we have already discussed in chapters 3 & 4, the wine industry is highly atomized. Even in the wholesaler tier, which is the most consolidated tier of the supply chain, company size (in terms of market share and annual revenues) does not compare to major players in other CPG industries. Once again, a clear distinction between the table wine and the premium wine supply chains must be made, as the more premium the wine, the more atomized the industry seems to be. Even though this holds true in many other industries when premium products exist, I believe that this issue is specifically important in the wine industry as one of the key properties by which premium wine is marketed (geography) directly undermines any attempt of consolidation. The effects that this has on the industry in terms of adopting new SCM strategies are vast.

First and foremost, most novel SCM strategies are built on the sharing of information [5] among companies, and industries that are leading in terms of SCM strategies have already invested significant amounts of capital in systems and technologies that enable them to collaborate and share large amounts of information in real-time. Not being able to gain economies of scale, companies along the wine supply chain have difficulties disposing of the required capital to invest in such systems. As an example of this, only large producers of wine such as Gallo, Chandon or Mondavi have been able to invest in ERP systems such as SAP or PeopleSoft, while smaller wineries rely on niche software which as of today still lacks of networking or communication capabilities.

Furthermore, these systems rely on communication standards to exchange information. In highly consolidated industries, companies with large market shares play a key role in helping (or directing) companies along the chain to adopt a specific standard (as is the case with Wall-Mart and its strategy on RF-ID adoption). Communication standards are often related to software packages, as usually each software vendor tries to impose
their own standard as a way to achieve lock-in strategies. Needless to say, in a highly atomized industry, were multiple niche systems coexist, the development of standards is much more difficult than in highly concentrated industries.

Without technologies in place that enable companies to share information and collaborate at different organizational levels, it becomes very difficult for them to embark in any inter-organizational strategy. As an example of this, the U.S. distribution tier, in which excess inventory exist along different organizations in the tier (almost all organizations along the tier hold safety stock), would clearly benefit from implementing such strategies. Nevertheless, companies still need to invest in technology assets before implementing inter-organizational inventory management strategies. The atomized nature of the industry also works as a deterrent to implement such projects, as it is much more difficult to implement these project between many different, smaller companies than to implement them between a few key suppliers.

**Legal Constraints**

As we have already seen in Chapters 3 & 4, legal constraints play a major role in shaping the wine supply chain. While leading industries in SCM strategies are finding new and creative ways of implementing production and distribution processes as a way to minimize the overall operation costs of the supply chain, the wine industry is still dealing with a somewhat archaic system which constraints its possibilities of achieving economies of scale and implementing processes and strategies to reduce costs.

The most obvious of these constraints is the three-tiered system, in which companies build their businesses not based on the value they add, but on a legal restriction imposed by the U.S. Government. For large producers of wine, the three tiered system does seem to work well, as they naturally need wholesalers and retailers to reach the market (like any other industry). For smaller, premium wineries, which would probably benefit from selling directly to customers and retailers, this system seems to raise more problems than solutions. But in any case, the important concept to keep in mind is that as importers, wholesalers and retailers build their business on legal constraints and artificial barriers to entry, their incentives to invest in projects to optimize operations diminishes. In other words, a government-monopolized retail tier, or a wholesaler company that builds its business on strong bonds with the local government clearly has much less incentives to optimize its operations than a wholesaler or retailer that operates in the open market.

As an example, wine shipping in the U.S. can get complicated enough as to create certain niches on which some companies build their whole business strategies. This is the
case of New Vine Logistics (NVL), a company that has spent U$s 30MM \(^{43}\) in building a system to enable wineries to send their wine directly to the end customer while simulating transactions between partner wholesalers and retailers in each state.

Even though it would be impossible to state every legal aspect of wine production, shipping and selling, and their impacts on current SCM trends, the main concept to keep in mind is that these legal constraints have a) divided the U.S. market into 52 different markets, b) introduce diseconomies of scale, c) remove incentives for operation optimization and c) force duplicate operations among organizations in the supply chain. Under these circumstances, any attempt to implement new SCM strategies (which usually include inter-organization operations) could prove impossible, if not illegal.

**Conclusions**

By now it is clear that the Wine Supply Chain is a lagger in terms of adopting new SCM trends:

- Inter-organizational strategies are difficult to implement due to legal constraints and industry atomization.
- Vendor-Customer Collaboration is also difficult due to the lack of investment in technologies that might enable companies to share information.
- Vertical disintegration of production, implementation of time and process compression principles, production planning, postponement strategies and production flexibility strategies are difficult to implement due to the agricultural nature of the product.
- Location analysis strategies are almost irrelevant, due to the relevance of location (in terms of the grape-growing process, and in terms of the “origin” of the product).
- Push-Pull strategies are also difficult to implement due to the agricultural nature of the product, the legal constraints, and the atomization of the industry.

However, and as stated throughout this thesis, premium wine products are different from table wine products, and hence, the strategies to follow by organizations selling these products will differ, as their needs and business models also differ.

**The Premium Wine Industry**

Premium wine is an expensive product, with high profit margins (when compared with table wine), and sells in small quantities (typical production is between 1,000 cases to 20,000 cases). Economies of scale are usually irrelevant to this industry, and higher profit
margins enable products to “accept” higher production and transportation costs to a point were implementing specific supply chain management strategies could easily become more costly than dealing with un-optimized processes. This, added to the legal constraints and agricultural aspects of the industry makes most of the new trends in SCM irrelevant to the industry.

Nevertheless, premium wineries could most surely profit from implementing inter-organizational strategies not aimed at production or distribution sharing, but at information sharing such as Vendor-Customer Collaboration, and push-pull strategies.

The three tier system works, to some extent, as a wall which difficult the sharing of information among organizations, separating wineries from their market. By implementing inter-organizational strategies wineries could gain a much better perspective on how, where and by whom their products are consumed. This, in turn, would enable them to better design their products by gaining first hand exposure to market trends.

**The Table Wine Industry**

The table wine industry is much more similar to other CPG industries. Production can be anywhere between 50,000 and 1,000,000 or more cases a year, and achieving economies of scale is fundamental to business growth due to low product margins.

Due to high production volumes and low profits, most SCM trends described at the beginning of this chapter apply perfectly well to this industry, as optimizing production and distribution processes could translate into important financial benefits. Furthermore, these organizations also have enough financial backings that as to enables them to implement company wide projects such as ERP and CRM systems. Also, producers of table wines have already implemented many postponement strategies (such bottling and labeling wine on demand).

Nevertheless, most of these projects seem to be only company-wide, and not supply chain-wide. Interestingly enough, supermarkets (where most of their products are sold) usually have ERP systems in place, which, from a technical perspective, should make strategies such as VIM and JIT feasible.

Why is it then that large wineries are laggars in terms of implementing inter-organizational SCM trends aimed at optimizing production and distribution processes? There are two possible explanations for this. Firstly, wholesalers do not seem to have enough incentives as to invest in the infrastructure (in terms of assets and HH.RR.) to carry out such strategies. Secondly, and more important, is a concept introduced by Mr. Mitchell
Burman\textsuperscript{19}, in which he assures that based on his own experience in the field, most companies are not aware of current trends, research and possibilities regarding operations optimization.

**Factors influencing the future development of Supply Chain Management Trends**

With a thorough understanding of the current state of the wine supply chain, how different tiers of this supply chain interact and relate to each other, and which are the major factors that have influenced the chain during recent years, I will now discuss what I believe to be some of the most relevant factors that will influence the development of the supply chain in the near future (2-5 years). We need to keep in mind that the factors that have influenced the development of the wine supply chain in recent years will continue to have a strong influence on the industry. Nevertheless, I strongly believe that they will start to, gradually, lose power as companies find ways to solve the problems imposed by these factors.

Along this thesis I have briefly discussed other important issues such as overall industry consolidation, retail tier consolidation and the influence of mass-publications and critics on the market. While issues like industry atomization and legal constraints are already facts that companies deal with in their everyday operations, I believe these other factors to be important issues that organizations along the wine supply chain will need to keep in mind while developing their future strategies. Some of them, like the importance of branding, are already gaining momentum, and as they become more and more relevant, they will have a stronger influence on the chain as whole.

Once again, these factors will not influence all segments of the industry in the same way and while discussing each factor, I will make clear exceptions when appropriate.

**e-Business**

E-business companies are starting finally deliver, at least to some extent, some of the promises they made back in the nineties. As consumers get used to use the Internet to buy goods, we can expect e-channels to start playing a more important role in terms of sales channels \[55\] \[49\] \[38\]. As e-companies find ways to avoid current legal constraints, e-

\textsuperscript{19} Mitchell Burman is the CEO and founder of Analytics, a consulting firm specialized in Operations Research. The mentioned concept was presented during a presentation he gave at MIT, for the course "Supply Chain Management", 2-APR-2004.
business sales channels will probably have an impact only on the smaller, premium segment of the industry, as cheaper table wine will still continue to be sold through large retail tiers. Nevertheless, e-channels such could produce interesting changes in this industry, as it would be feasible for a well-reputed e-bay user to sell ultra-premium wines, or even wine futures through auctions in this site.

International wineries will have to understand these new business models, as sales and distribution processes for these companies differ largely from “brick-and-mortar” companies, and New Vine Logistics, Wine.com and many more smaller sites like likegratefulfullpalate.com are already showing us the way.

The importance of Brands

Branding is becoming increasingly important in the wine industry [54] [52] [20] [44]. Not long ago wine was marketed mostly by region, or vintage, but as the global trading of wine increases, and more labels become available, wine branding seems to become increasingly important. And the cheaper the wine, the more important the role the brand seems to be: or does anyone knows (or cares) where the “2 bucks chuck” wine label produced by the “Trader Joe’s” retail chain comes from? Wineries, and even retail chains are trying to use branding as a tool to achieve something that has, so far, seem impossible: get some customer loyalty.

In any case, a concise branding and marketing campaigns are fundamental for achieving success at the retail level. Wine branding seems to be extremely complicated, not only because of the high market segmentation, but also because it needs to be done at the label, winery, region and country levels, and none of these can be avoided. I believe we can expect to see more and more efforts done by wineries in these areas, and these wineries will need to work closely with tiers down-stream the supply chain in order to be able to deploy sound, concise branding and marketing strategies.

Wineries now need to design their products before actually producing it. For as obvious as this might seem, this process is not always well understood by wineries overseas, especially if they don’t understand the dynamics of the U.S. markets. Product properties and target market are only two of the many variables that need to be taken into account before actually producing the wine. Not doing so will raise the probabilities of producing wine that cannot be sold. Following ideas presented by Prof. James Lapsley, this can be easily exemplified with a winery that produces, for example, 50,000 cases of wine to be sold in foreign markets. If the wine is targeted at a retail price of u$s 20, 50,000 cases is
probably too much. On the other hand, if the wine is targeted at a retail price of U$6, the production volume will be too small as to attract possible buyers.

It is also important to note that Country and Region branding happens, regardless of whether the industry has a specific strategy in place or not. It is something that cannot be avoided. Obviously, it will be much better for the industry to have a specific strategy in place than to leave this to unfold as a consequence of commercial processes developed by different wineries.

**The influence of Wine Publications and Critics**

As more and more labels get to the market every year, the process of buying the right bottle of wine for the right occasion has become even more complicated than deciding upon which breakfast cereal brand to buy (and this problem gets even worst if we consider that the amount of money of such a transaction can easily exceed the U$7.00 range). It is therefore understandable that day after day more people turn to well-reputed wine connoisseurs and magazines as a point of reference, as a way to lower their uncertainty.

The role of magazines such as “The Decanter” or “The Wine Spectator” are becoming increasingly important for premium and ultra-premium wines, and not to mention wine connoisseurs that even specialize in a country, or even a region inside a country.

Although wine reviews are done mostly on premium and ultra-premium wine labels, all segments of the industry profit from a positive review, as these reviews also tend to market the region and country from which the wine comes from. Wineries need to work closely with Magazines, but mostly with wine connoisseurs as they not only provide an excellent way of marketing and creating region or country “awareness”, but they have also proven to play a fundamental role in terms of passing information upstream the chain in terms of current and future market trends.

**The Consolidation of the U.S. Retail Tier**

The consolidation (or Wal-Martization) of the U.S. food retail tier is a major trend in the U.S. Wal*Mart has already proven that the consumer is willing to travel the extra mile in order to get a U$10.00 discount, and I have already mentioned how large retail chains are increasingly gaining bargaining power against their suppliers present, at the same time, a real threat of backwards integration.

These retail chains are probably one of the best examples of supply chain optimization, and they are constantly adopting (and also defining) state-of-the-art supply chain management trends in terms of distribution and sales (marketing) processes. These
distribution and sales processes have changed so radically during the past years that producers need to work close and integrate with them at many levels in order to assure product success and gain market share. The perfect example of this is Wal*Mart, and its strategy to implement RD-IF along its supply chain by 2005. Wal*Mart is in such a position that it can “encourage” its supplies to implement RF-ID, a technology that some believe will add the most value to the retailer, while most of the investment needs to be made at the production tier of the chain [1] [2] [3].

In the specific case of the wine supply chain, these changes are also starting to show its effects, and large producers of table wine are well aware of this issue. It is now possible to buy a good bottle of premium, imported wine at discount prices in many retail chains. For as obvious or simple as this might seem, this is not a minor issue, as it could have important effects on the entire commercial strategy put in place by a given winery.

It is because of operational and commercial processes that wineries need to work closely with companies downstream the chain before they actually define the product’s characteristics and market segments. A strategy that takes into account the needs of all companies downstream the chain will definitely have more chances to succeed than products that are designed in an isolated way, and then tried to be “pushed” downstream the chain.

**Operations Optimization and the Collapse of the Supply Chain**

The U.S. Wine Supply Chain will collapse, with or without the help of the government, who has played an important role in terms of not allowing the supply chain to optimize. It is important to note that by “collapse” I don’t mean that there are too many companies along the chain, and that some of them will gradually disappear. As I already mentioned, the three tiered system seems to work well for large wineries, and that is not likely to change, even if it is not legally required. By “collapse”, I mean that companies that do not add real value to the production and distribution processes (optimization) will have problems sustaining their businesses in the long term.

We can see this already happening, with companies like J.F. Hillebrand, New Vine Logistics, and eSkye Solutions, all of which provide services related to information sharing or direct product distribution to customers.

Interestingly, all of these companies use technology as a strategic differentiation tool. We have already seen how different technologies have proven to be disruptive in many government related areas such as copyright management, interstate taxes, and export taxes. Novell business models based on technology (like most e-commerce sites) are taking
advantage of the fact that the U.S. government is still trying to catch-up with this new, virtualized economy, and are constantly finding ways to avoid government taxes or regulations. Looking at how this situation is unfolding in many different industries, it is not difficult to see that as these technologies get mainstream, companies along the wine supply chain will eventually find ways to avoid many of its legal regulations. And we only need to take a look at how New Vine Logistics is starting to implement these technologies in order to have an idea of how deeply this will affect the supply chain in the medium term.

As producers of premium wines and table wines have different goals and problems to solve, these changes will not manifest in the same way for both types of companies. I expect that while large producers of wine will use these technologies to optimize distribution strategies (but keeping the same selling channels), producers of premium wine will try to use them to get as close to the final customer as possible, trying to avoid intermediaries in the supply chain.

**Supply Chain Management as a Business Strategy Tool**

As it happened in many other CPG industries, I expect large scale wineries that have already well established businesses, and that understand the process of pushing (or pulling) their products downstream the supply chain, to make more heavy use of better quality information (once it becomes available) to better understand market trends and behaviors.

On the other side, producers of premium wine will probably take advantage of new SCM techniques to better serve their markets. Selling premium wine seems to be specially complicated due to the atomization of the markets (in terms of segments and geographic locations), and hence, the atomization of the distribution process. Therefore, we can expect producers of premium wine to take advantage of new SCM techniques and technologies to consolidate the distribution of their products, and find a coherent way in which to approach their markets.

Without a doubt this presents a huge opportunity to whoever can find with a solution to this problem. Once again, New Vine Logistics seems to have seen this opportunity and is currently developing a portfolio of distribution channels through which premium wineries can sell their products. Interestingly enough, all of NVL’s channels are either e-channels or very specific channels like wine clubs, and we still have to see if NVL will be able to convince an “already established, brick-and-mortar” wholesaler to work with them.

In any case, I expect more of these business models to appear in the medium term, producing major changes in the premium wine supply chain.
Supply Chain Management and Operations Research

Current research in SCM related to OR\textsuperscript{20} is aimed at improving manufacturing-intensive industries, in which production processes can be manipulated. Implementing concepts like Lean Manufacturing, Kanban or Just-in-Time have yielded in major financial and strategic advantages for many companies. Clearly, the Automotive and the PC industries seem to be the leaders in these areas.

Nevertheless, these concepts are hard (if not impossible) to implement along the wine making process, as the agricultural nature of the wine production process (even for producers of cheap table wine) imposes a clear limit to these techniques.

Furthermore, many of these new techniques are aimed at supporting the virtualization of the supply chain in order to produce the goods wherever it might be most convenient. This does not apply to many segments of the wine supply chain, as the location in which wine is produced is an important part of the marketing attributes of the product. Wineries seem to have already implemented many SCM and OR techniques (like postponement and quality assurance processes) to the point that is possible for them.

Having said this, new techniques, technologies and processes are constantly being developed to better control the overall wine production process and grape growing process. Vines can now be grown in places were it would have been impossible to do it before [21] [26]. Wineries are producing more stable products along vintages, and overall product quality is easier and cheaper to achieve [40].

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